

AUGUST 2006

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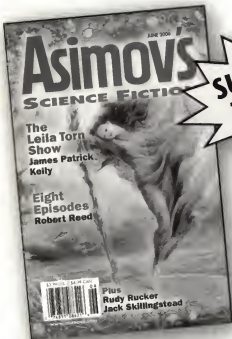
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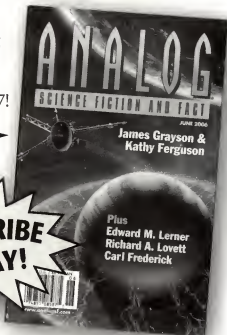
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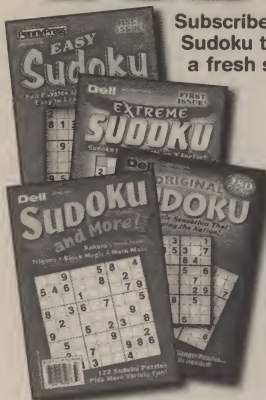
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AUGUST 2006

Vol. 30 No. 8 (Whole Number 367)

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THE 2006 DELL MAGAZINES AWARD

Meghan Sinoff, the winner of this year's Dell Magazines Award for Undergraduate Excellence in Science Fiction and Fantasy Writing did not have to travel far to get to Fort Lauderdale, Florida, in order to receive accolades for her story, "Shift." Meghan is an undergraduate at the University of Florida majoring in English and minoring in linguistics, anthropology, and Japanese. In addition to her award certificate, she received five hundred dollars from Dell Magazines. Her moving story will appear on our website next year.

Dell Magazines co-sponsors this award with the International Association for the Fantastic in the Arts. The Dell Magazines Award is also supported by the School of Mass Communications, University of South Florida, Tampa, Florida. The award is given out every March at the Conference for the Fantastic in the Arts.

Meeting and talking with Meghan was a delight. I was also pleased to discover that the other finalists wore familiar faces. As always, I had chosen my favorite stories from a blind read of the contestants. As first runner up, Eliza Blair repeated her performance from last year. This year, Eliza took home that certificate for her story "Silver Eyes." In addition, she picked up an honorable mention for "Beast." Both tales took inspiration from the same well-known fairytale, but when I read them, I had no idea they were by the same author. Eliza has a double major in

physics and English at Swathmore College. As the most recent recipient of Swathmore's Morrell-Potter stipend for creative writing, she plans to spend this summer working on writing projects. We hope to see some of the results in next year's contest. Eliza also wins a two-year subscription to *Asimov's*, but that subscription will have to follow upon the two-year subscription she won last year.

Our second runner-up, Catherine Krahe, received her award and a one-year subscription to *Asimov's* for "Running After the Sirens." Cassie, a physics student at Illinois Wesleyan, will embark on a Ph.D. in environmental engineering in the fall. Last year, Cassie's memorable tale about "Undine" received an honorable mention. It has since sold to *Realms of Fantasy*.

Last year's award-winning story, "Around the World," by Anthony Ha, is now up at our website. Don't miss this wonderful tale.

In addition to all these exciting student awards, I was pleased to see my co-judge, Rick Wilber, receive the Stephen R. Donaldson Service Award for all the effort he's put into making our award a reality these past thirteen years.

When I wasn't busy meeting with the students; having drinks by the pool with authors like Anne Harris, Peter Straub, Ellen Klages, Stephen R. Donaldson, and Eileen Gunn, as well as *Emerald City* web and fanzine maven Cheryl Morgan and former *Foundation* editor Farah Mendelsohn; eating ice cream with James Patrick Kelly,

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Photo credit: Beth Gwinn

Left to right: Eliza Blair, Meghan Sinoff, Rick Wilber, Catherine Krahe, and Sheila Williams.

Ted Chiang, and Tachyon publisher Jacob Wiesman; talking with Brian W. Aldiss, Judith Berman, John Clute, Andy Duncan, Elizabeth Hand, and Mary Turzillo; dining with Joe and Gay Haldeman and well-known SF fan and historical repository Rusty Hevelin or with David Lunde and Patricia McKillip, I attended some terrific author readings by Kathleen Ann Goonan, Steven Erikson, and Mary Anne Mohanraj. Unfortunately, scheduling conflicts kept me from many other worthy readings, but I didn't feel too guilty about skipping John Kessel's because the story he read, "Sunlight or Rock," will be appearing in our September issue.

We are actively looking for next year's winner. The deadline for submissions is Monday, January 2, 2007. All full-time undergraduate students at any accredited university or college are eligible. Stories must be in English, and should run from 1,000 to 10,000 words. No submission can be returned, and all stories must be previously unpublished and unsold. There is a \$10 entry fee, with up to three stories

accepted for each fee paid. A special flat fee of \$25 is available for an entire classroom of writers. Instructors should send all the submissions in one or more clearly labeled envelopes with a check or money order. Checks should be made out to the Dell Magazines Award. There is no limit to the number of submissions from each writer. Each submission must include the writer's name, address, phone number, and college or university on the cover sheet, but please do not put your name on the actual story.

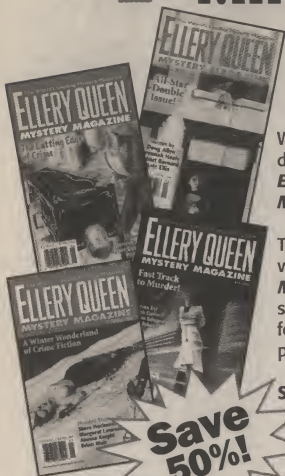
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THE THUMB ON THE DINOSAUR'S NOSE, II

Last issue I spoke of the remarkable display of life-sized brick-and-concrete dinosaur models that the sculptor Benjamin Waterhouse Hawkins created for London's Crystal Palace Park in 1854, barely a dozen years after British scientist Richard Owen had coined the term "dinosaur." I told something of how the park had come into being and spoke of finally visiting the park myself in the summer of 2005, after having known of its existence for many years, while I was in Great Britain to attend the World Science Fiction Convention in Glasgow. Let me now take you on a tour of this extraordinary place.

You get to Crystal Palace Park, which is in a suburban town just to the south of London, by a twenty-minute train ride from Victoria Station. The train lets you out right at the park entrance; but to get to the dinosaurs themselves you need to walk past a modern sports stadium and a few other buildings before you reach the island of the Iguanodons and Plesiosaurs. (Of the Crystal Palace itself, that phenomenal specimen of nineteenth-century engineering prowess, no trace remains. The vast glass-and-iron exhibition hall burned to the ground in 1936. A few of the outlying structures of the original amusement park that surrounded it still exist—and, of course, the Waterhouse Hawkins dinosaurs.)

A sloping trail takes you down to-

ward the artificial island where the dinosaurs cluster. One of the first beasts that greets you—not, in fact, a dinosaur—is Teleosaurus, a gigantic crocodilian of the late Triassic, sprawling in the shallow water of the lake. The distinctive pelvic arrangement of true dinosaurs allowed them to stand upright, as birds do today. Teleosaurus has the characteristic legs of crocodilians, splayed out to the sides. But it is enormous, and Waterhouse Hawkins has endowed it with a truly intimidating set of sharp teeth. And how astounded the visitors to Crystal Palace Park must have been to think that crocodiles once inhabited the British Isles! (The first Teleosaurus fossils were discovered in 1758 on the cliffs of the Yorkshire coast.)

Nearby in the water lurks a Plesiosaurus, extending its long serpentine neck toward the island, and next to it is an even bigger sea-going dinosaur, the Ichthyosaurus, with its immense toothy mouth agape. (Waterhouse Hawkins tended to give many of his dinosaurs the facial structure of crocodiles.) The Ichthyosaurus is starting to come up on shore, where ichthyosaurs have no business being; but such details of habitat were still largely unknown in 1854.

The real show is just beginning. As you come around the bend, you glimpse several Permian amphibians, Labyrinthodons, clustering at the water's edge. The Waterhouse Hawkins Labyrinthodons are no

bigger than cows, but what makes them impressive is that they are really *weird*—sturdy big-headed humpbacked things that look like colossal frogs. (Actually Labyrinthodon looked more like a crocodile, but the only fossil evidence of it that was known then was its skull, which led Richard Owen to guess that its body was froglike in shape.) Another extinct amphibian and another wrong guess is next: Dicynodon, portrayed as a massive critter with a turtle-like shell and two big jutting fangs. Again, Owen and Waterhouse Hawkins were working from nothing more than a skull and a few other bones. In fact Dicynodon looked more like a hippopotamus than a turtle, but give the sculptor high marks for imagination.

A couple of Pterodactyls perch on the main sector of the island. (These are modern replicas, built from photographs; the 1854 originals did not wear well and had to be removed.) Just behind them is the awesome Megalosaurus, a ponderous beast with the huge head and humped back that Waterhouse Hawkins favored for most of these creatures. Fossilized Megalosaurus bones had been discovered in England as far back as the seventeenth century. William Buckland, whose scientific analysis of Megalosaurus bones in 1824 was the first such description of any dinosaur ever published, visualized it from its skull and thighbone as a carnivorous reptile of super-elephantine proportions, forty feet long and seven feet high. The Waterhouse Hawkins version is not that big, but it is quite big enough and looks mean and hungry, and you would not want to meet a live one in the park. Once again only fragmentary fossil evidence was used in the reconstruc-

tion, and the result had more fantasy than science about it. We now know that Megalosaurus stood upright on its hind legs, somewhat in the manner of a Tyrannosaurus. But, like all the land-going Crystal Palace dinosaurs, it is depicted here as a quadruped, since no one then, not even Richard Owen, believed that creatures as bulky as dinosaurs could be capable of standing on two legs alone.

Next to the Megalosaurus is another oddity: Hylaeosaurus, a stocky quadruped of medium size with plates of armor on its body and a strange row of spikes running along its back. Hylaeosaurus, discovered in 1833, was the third dinosaur to be identified, but the Crystal Palace reconstruction was made using only the skimpiest of fossil evidence, and, alas, not much more has come to light since then, so we have no idea how close to its real appearance Waterhouse Hawkins came. As a work of imagination, though, it succeeds most excellently.

The most famous of the Crystal Palace dinosaurs—and the one that involved Owen and Waterhouse Hawkins in the biggest whopper—stand majestically nearby. These are the Iguanodons, perhaps a dozen feet high and thirty feet long: the second known dinosaur, and the first superstar of the tribe, in those days before Brontosaurus and Tyrannosaurus had been unearthed. Iguanodon was discovered by the English physician and naturalist Gideon Mantell, who named it “Iguana tooth” because of the resemblance of its teeth to those of the modern South American lizard. Mantell, publishing an account of his find in 1825, calculated on the basis of the

teeth alone that Iguanodon might have been a hundred feet long, larger than the largest whale, and one can easily imagine the stir that that caused in the England of George IV's time. Other discoveries in the next few years showed that Iguanodon was nowhere near that size, but nevertheless must have been unthinkably large. And so they are depicted at Crystal Palace.

But the feature that makes the Crystal Palace Iguanodons special is the large rhinoceros-like horn that each one has on its nose. It is a very striking ornament indeed; but what Owen and Waterhouse Hawkins didn't know was that the pointed bone that they identified as a nasal horn was in fact one of a pair of thumb-like spikes that Iguanodons had on their hands close to their wrists. So there stand the Crystal Palace Iguanodons, grand and huge, with jaunty thumbs on their noses! (They also stand on four legs, though we now know that they, too, were bipedal dinosaurs.)

The one remaining dinosaur on the island is the aquatic reptile *Mosasaurus*, portrayed simply as a great menacing head sticking up out of the water, since nothing more was known of it then but its skull. As you continue around the site, though, you will find reconstructions of extinct animals of more recent times lurking in the shrubbery: an impressive *Megatherium*, or giant ground sloth; a couple of tapir-like *Paleotheriums*; a *Megaloceros*, or giant Irish elk, and so forth. Apparently the plan had been to extend the display to include mastodons and other extinct mammals, but they were never constructed, perhaps because funds had run out.

Political chicanery rather than a

shortage of money was the reason why New York City's Central Park does not have a similarly delightful exhibit of nightmare monsters out of prehistory. In 1868 a New York city official contacted Benjamin Waterhouse Hawkins, who was then visiting the United States, and invited him to create dinosaur models for a proposed Paleozoic Museum, a Crystal Palace-like structure to be erected on the western side of the park near 63rd Street. Hawkins accepted enthusiastically, and it was quickly decided that he "should attempt to reproduce the original forms of life inhabiting the great Continent of America, rather than repeat the European forms that had been already illustrated in the Palace Park at Sydenham, in England."

Waterhouse Hawkins went off to the Philadelphia Academy of Sciences, to the Smithsonian, and to Yale University to study such newly discovered and imposing American dinosaurs as the duck-billed forty-foot-long *Hadrosaurus* and the fierce-looking carnivore *Laelaps* (now known as *Dryptosaurus*), a *Megalosaurus* relative. But this was the era when New York came into the hands of the corrupt administration of the infamous Boss Tweed. Tweed put his own men in charge of Central Park; the new administrators, seeing no gain to be had for themselves from a Paleozoic Museum, quickly scrapped the plan; and the models Waterhouse Hawkins had already constructed were buried somewhere in the southern part of the park, never to be seen again.

The grand and glorious Crystal Palace dinosaurs remain on view to this day, though, and, because of a major rehabilitation project in

the 1980s and 1990s, they look as good as they did on the day Queen Victoria opened the park in 1854. As I have indicated, we know now that they are not distinguished for their scientific accuracy, although they represented the last word in paleontological knowledge when they were constructed a century and a half ago. They have the terrifying look of monsters out of ancient time, yes, but it's hard to repress a grin as we stare at their great squat humpbacked bodies, their oversized heads with that

ominous multitude of teeth, and, of course, those thumb-spikes on the noses of the Iguanodons. I found my journey to the dinosaur island of Crystal Palace Park greatly rewarding, both for the beauty and strangeness of the sculptures and for the sense they gave me of the pioneering intensity of scientific inquiry that existed in the dynamic Victorian Age. And, oh, how utterly fantastic those dinosaurs must have seemed to the visitors who viewed them long ago in Queen Victoria's time! O

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LETTERS

Dear Asimov's:

I have been an *Asimov's* subscriber off and on since I was eleven years old. I'm so old now that what exactly the year was escapes me, but it was twenty-eight years ago. I miss the dear doctor's editorials a great deal. One of the things that has remained constant over the last couple of decades (and was and is an advantage this magazine has over other, more "hard" science fiction magazines) is the quality of the writing. Not necessarily the stories, as I have in the past read a story in your magazine that I would not have pointed to as science fiction, were the decision left to me. But the *writing*. Even those stories that I could not really consider science fiction are of a quality and vibrancy that is breathtaking. To have maintained this degree of quality for this long is amazing to me in this age of short-term profits and ephemeral styles. I thank you for producing a magazine that I am proud to pass on to my twelve-year old daughter (once I'm done reading it!). She hounds me until I'm finished, then pounces. . . .

The latest example of this stellar editorial selectivity is the first story in the February issue. "Under the Graying Sea" is an extremely well written story. Even from a magazine of your historical predilection for quality, this is a gem. As fine a piece of writing as I've read in a very long time. It's good to see authors paying as much attention to character, pacing, and atmosphere as to the gizmos in our genre.

John Jolet
Austin, TX

Dear Ms. Sheila Williams,

Recently, I happened to read my first issues of *Asimov's* magazine (February 2006), and I would like to make a short comment on your editorial, "Alternate History." It is the very nature of mankind to put a label on anything he or she happens to come across. Hence this ever increasing habit of inventing further categories for SF writings. The problem is not merely that the category boundaries are rather vague, but that writings keep changing their place as time goes by. Ray Bradbury's *Martian Chronicles* were written, fifty years ago, as SF stories. They are taking place in 1999. This date has already become our past. Consequently, Bradbury's book has become a book of alternate history. It means that it will never be possible to come to an unambiguous decision. This debate can only serve one purpose: to keep SF literature alive. But for this purpose, it is perfect.

Attila Szücs
Budapest, Hungary

Dear Sheila,

I was intrigued to read the editorial in the February issue. I never knew Fidel Castro was scouted by the New York Giants! Alas, I did some poking around, and, according to Roberto González Echevarría, who is quoted on *Snopes.com* <<http://www.snopes.com/sports/baseball/castro.asp>>, it appears that this is not true.

So I suppose Bruce McAllister's "Southpaw" was an alternate history to an alternate history!

Prof. Raffaello D'Andrea
Ithaca, NY

The author replies. . . .

Thanks for passing along Raff's eye-opening email. I can hear the anthem at Fidel's first game fading. In my defense (but without defensiveness), at the time I wrote that story I was doing quite a bit of research on Castro and found mention of that offer in three books, and J. David Truby's article in Sports History; and of course by then, truth or finca-legend, it was on the grapevine. I'm also pretty sure that my uncle, sports-writer and investigative journalist Jack Tobin (six Olympics for Time Life, Sports Illustrated's West Coast editor, Teamster Fund, helped put Hoffa in jail) either mentioned the offer to me, too, or at least didn't argue when I mentioned it to him; but the story may not have been high enough on his radar for him to check it out himself and not rest, as I did, on book sources or the collective rumor-mill.

Please thank Raff for me for the very gracious face-saving line "alternate universe of an alternate universe." I'll sleep better tonight because of it.

Bruce McAllister

Dear Sheila:

I applaud your introducing the SF Sudoku puzzle, and hope you can squeeze it in regularly. I have worked each puzzle I happened to come across in the newspaper, *Time* magazine, etc., since I discovered them over a month ago. Yours is the only one I have seen that substitutes letters for numbers. Both of the puzzles were among the easiest I have worked, which is good for beginnings. But I worked the first one with the letters and demonstrated to myself how crucial it is *not* to make any mistakes. I had to start over when it was obvious that I had "goofed." By the way, the title is *The Naked Sun* by my favorite author of all time.

A personal note: I am an avid SF collector, with over forty thousand books and magazines in my collection. I have, among other things, almost a complete run of all titles of the science fiction pulps, including a rare set of *Weird Tales*. I started collecting in 1954. Of course I have a complete run of Asimov's and enjoy the magazine a lot. I have just retired from a career as a chemistry professor, and have never lost my sense of wonder, due in large part to science fiction.

John Marx
Lubbock, TX

Dear Sheila & Company—

While I recognize that the young teen daughter in Deborah Coates's moving story is the archetypical unreliable narrator, as a former resident [though many years removed], Fairbanks does observe the summer solstice. My twenty-something cousin celebrated it the summer before last.

I'm afraid this small point broke my suspension of disbelief, so carefully cultivated by Ms. Coates's wonderful recreation of that familiar, rollercoaster "lost in the wilderness" voice of her narrator.

Otherwise, my praise for a story as sensitive and emotion-packed as its companion "Rwanda" by the esteemed Mr. Reed.

JJ Brannon
Newark, DE

The author replies. . . .

Well, JJ, never let it be said that I let facts get in the way of a good story. I do understand, though, how sometimes small untruths can bring a reader up short.

Thanks for the kind words about "46 Directions . . ." I can only be honored to be complimented in the same sentence as the estimable Robert Reed.

Deborah Coates

Greetings,

Having subscribed to *Asimov's*, as well as *Analog* and *F&SF*, for more than twenty years, this is my first occasion to write. My opinion, for what it's worth, is skip the puzzles. I'm all for more fiction and fact, but quit the poetry, too. My other bugaboo is serializations. Please none of those.

Joe Senkeresty
Eaton Rapids, MI

Dear Sheila Williams,

Many thanks for the Science Fiction Sudoku puzzles in the March 2006 issue! Also appreciated was the interesting history of the puzzle around the world. Having been addicted to Dell puzzle books for several decades, I remember "The Number Place" puzzles when they appeared around 1980. It is amusing that they have finally returned, but this time as a new "craze" around the globe!

Being a subscriber to *Asimov's* since its inception, I well remember the occasional crosswords or other puzzles published within its covers, and it is enjoyable to see a return of their delightful presence. May you continue to find both contributors and space within the magazine to present more puzzles in the future.

Lindsay Cleveland
Maysville, GA

Sheila:

The book title is *The Naked Sun* by our very own "Good Doctor" Asimov.

As for the puzzles; good, better, *best*! I got hooked on Sudoku several months ago when our local paper picked it up, and am thoroughly addicted. It never occurred to me that the puzzles would work as well with nine unique letters as the numerals one through nine. I guess that's why

I'm not the holder of a dozen patents on marvelous inventions that are obvious—after you see them. Please slip one in the magazine whenever you can without conflict with the fiction.

I'm a *long* time subscriber, and have *every* issue of *Asimov's* on my shelves.

Robert E. (Bob) Hubbard
Winter Haven, FL

Dear Sheila,

Glad to see the Sudoku in *Asimov's*. I've become an addict.

I do like the idea of solving for other symbols than just numbers. You could maybe use stars, crescent moons, etc., instead of numbers and letters. The trick would be finding enough distinctive shapes that are relatively easy to copy into a small space. My vision isn't the best anymore so I like bigger grids, and I solve with an erasable pen.

Good luck with this experiment! Hope to see you at the WorldCon in L.A.

Dr. Elizabeth Anne Hull
Palatine, IL

I may eventually sprinkle the puzzles with astronomical symbols. The grids are still "easy" to solve, but we'll increase the levels of difficulty in some puzzles in future issues. In the meantime, you'll find an SF Sudoku puzzle by the letters column's own John Marx on p. 81.

Sheila Williams

Dear *Asimov's*:

Joe Lazzaro's "Thought Experiments" column in your March 2006 issue posits the existence of an "unbreakable bond between space activism and science fiction fandom," and goes on to describe in detail the enthusiastic support many science

fiction fans have for the space program. I would like to point out that this view is not shared by all your readers. I have been reading SF as long as I can remember, and am a huge fan of many fine SF authors who write about space. But in the real world, I view actual space exploration as a boondoggle, a phenomenal misuse of resources, and a general waste of money. Space exploration is fascinating, I admit. But spending the vast amount of money required to do so is simply unconscionable given the very real unmet needs in the world today.

I remain a loyal and enthusiastic reader of *Asimov's* and other sources of science fiction. But I am wholeheartedly against using vast amounts of valuable resources on any aspect of space exploration. Space travel today is largely in the realm of science fiction. It should stay that way.

Gordon Kelley
Eugene, OR

Robert Silverberg,

I enjoy your Reflections column. I noticed an error in "Plutonium for Breakfast." Life as we know it is limited to a planet "which has an atmosphere made up mostly of oxygen and hydrogen." Well the earth's at-

mosphere is mostly nitrogen (80 percent) and oxygen (20 percent).

The way the column is written, I got the impression that the radiation tolerant *Kineococcus* might be able to clean the eighty acres near Hanford of the radiation. That it could digest the toxic compounds is promising, but that will not remove the radiation.

Wally Beitzel
Redondo Beach, CA

The author replies. . . .

I committed a grievous fingers-moving-faster-than-brain maneuver in the March column, "Plutonium for Breakfast," when I said that Earth's atmosphere is made up mostly of oxygen and hydrogen. Not even the ocean-covered world I depicted in my novel The Face of the Waters would have an atmosphere full of hydrogen. Obviously I'd been inhaling too much nitrous oxide the morning I let that careless sentence slip by. As Wally Beitzel so tactfully reminds me, Earth's atmosphere is, of course, made up primarily of nitrogen, with a big useful chunk of oxygen mixed in and a smattering of other stuff. Accept no substitutes.

Robert Silverberg

We welcome your letters, which should be sent to **Asimov's**, 475 Park Avenue South, Floor 11, New York, NY 10016, or e-mailed to **asimovs@dellmagazines.com**. Space and time make it impossible to print or answer all letters, but please include your mailing address even if you use e-mail. If you don't want your address printed, put it only in the heading of your letter; if you do want it printed, please put your address under your signature. We reserve the right to shorten and copy-edit letters. The email address is for editorial correspondence *only*—please direct all subscription inquiries to: 6 Prowitt Street, Norwalk, CT 06855.

SON OF MOVIES

sez me

Contrary to popular belief, it isn't really in any science fiction writer's job description that he must predict the future. In a longish career thus far, my record as a futurist is pretty shabby. No devilish aliens have arrived to replace all the men on earth with robots, dinosaurs have yet to teach us to think, and television shows have not achieved consciousness, thank goodness. But readers of this column have the right to expect a head's-up every so often from their net pundit, and I haven't been shy about pointing out trends and making educated guesses about what might be crossing your screens someday. For example, in a 2002 column called **Movies** <<http://www.jimkelly.net/pages/movies.htm>> I wrote, "It is only a matter of a few years, it says here, before the means of distribution of movies and television will have to be reinvented. In the same way that the mp3 standard has changed the music industry, predictable improvements in bandwidth as well as data compression and storage will kill off not only Blockbuster, but your neighborhood mom and pop video rental stores. Count on renting *Alien Re-reincarnation The Next Generation Part III: A New Hope* from sequels.com by, say, 2007. Not long after cable and broadcast tele-

vision channels will get a very hard shake indeed."

It looks to me as if we're pretty much on schedule for this particular apocalypse. No, Blockbuster hasn't died, but buzzards have been spotted on the horizon. Blockbuster stock, which was trading at twenty-four dollars a share when I made this prediction in February 2002, has dipped below four dollars as I type this in March 2006. In my rural New Hampshire hamlet, one of the two mom-and-pop video stores has shut its doors. I confess I'm partly to blame: I joined **Netflix** <<http://www.netflix.com>> last year.

downloadables

Netflix, despite its name, is primarily a hardcopy purveyor of cinema: you order your DVDs online but they arrive days later in your snailmail box. There are several all digital movie rental sites, which, while they can't yet offer anything like Netflix's prodigious library of film, do point toward the future of downloading. The best of these are **Movieflix** <<http://www.movieflix.com>>, **CinemaNow** <<http://www.cinemanow.com>>, **Movielink** <<http://www.movielink.com>>, and **Starz** <<http://starz.real.com/partners/starz/starz.html>>. CinemaNow and Movielink are pay-per-view sites—that is, you pay for

each movie, typically about three to four dollars, and after you download it, you can watch it as many times as you want in a twenty-four hour period. (One thing to be aware of, if you're interested in trying these sites, is that they only work if you access them with Internet Explorer. The Firefox and Opera browsers need not apply.) Starz and Movieflix, on the other hand, offer an all-you-can-watch service for a monthly fee, thirteen and seven dollars respectively. Starz cycles movies onto and off of its menu weekly; its offerings are about what you'd expect from a premium cable service, i.e., some classics, a few straight to video dumps, and a bunch of movies that you probably saw six months ago. Movieflix presents a quirkier mix. I think you'll get the idea if I tell you that today the two featured movies on its front page are the 1961 sword-and-sandal-epic **Ulysses Against the Son of Hercules** <<http://www.oldies.com/product-view/4684D.html>> and the 1963 thriller (?) **The Sadist** <<http://www.imdb.com/title/tt0057465>>. Movieflix looks to be where B and C grade movies go to die.

Understand that with all of these sites, the movie you download lives on your hard drive. Unless you have a S-video jack or some way to stream content from your CPU to your TV, you're going to be watching on your computer screen. Still, maybe that's not such a bad deal if you want to bring **Blade Runner** <<http://brmovie.com>> along with you on that boring plane ride to Dubuque. You'll need a broadband connection to take advantage of them, but then more than 70 percent of Americans have one, according to Web Site Optimization.com's **Bandwidth**

Report <<http://www.websiteoptimization.com/bw>>. How quickly can you get your movie? Typically thirty to forty minutes for VCR quality and maybe an hour and a half for DVD quality, depending on your download speed and the length of the flick.

bits

There is another movie downloading option that doesn't cost anything, but that also might put you on the wrong side of the law. The BitTorrent approach to file-sharing was invented by **Bram Cohen** <<http://bitconjurer.org>> in 2001, and it is estimated that torrents currently drive between a third and a half of the world's peer-to-peer traffic. The BitTorrent protocol breaks huge files into more manageable chunks that do not have to be downloaded in sequence and which can come from many different computers, thus distributing bandwidth. When these chunks arrive on one computer, they become available to many others. With BitTorrent, the more demand there is for a file, the more "seeds" of the file on torrent-accessible computers become available and the faster the download. Thus, it is ideally suited for snagging popular and staggering large files—movies, for instance. Bram Cohen gave us not only the BitTorrent protocol but also the **BitTorrent Client** <<http://www.bittorrent.com>>, a fine implementation of this essential downloading software. No offense, but I use **µTorrent** <www.utorrent.com>. Both are freeware and well worth your consideration.

The BitTorrent protocol is an example of the kind of brilliant inno-

vation that will carry us into the digital future. The problem comes when you start to look around the web for torrents to download. If you click one of the popular torrent search engines and type in the name of that movie you and your girlfriend saw on your first date or the TV show you missed last Tuesday, chances are that you'll find exactly what you're looking for. Depending on how obscure your tastes are, you can have your fave on your desktop in a couple of hours, or maybe overnight or, in the worst case scenario, over a couple of days. This is reminiscent of the heyday of **Napster** <<http://en.wikipedia.org/wiki/Napster>> back at the turn of the century, only this time instead of the entire backlog of the music industry, what's in play may ultimately be every movie and TV show ever made.

I'd mention some of more popular torrent search engines, except that the **Motion Picture Association of America (MPAA)** <<http://www.mpaa.org>> is suing many of them over copyright infringement and they may well have gone dark by the time you read this.

We pause here for a brief rant:

Don't get me started on the dastardly MPAA! These Ludite fat cats are totally out of control when it comes to their efforts to criminalize innocent, commonsense behaviors by folks like you and me. I haven't got the space here to point out how wrongheaded they are, but check out the Electronic Freedom Foundation's website, and in particular the **Digital Millennium Copyright Act (DMCA) Archive** <<http://www.eff.org/IP/DMCA>> for the case against them. If we let

the MPAA impede innovation and choke off the flow of information, we'll be peering at websites through the eye of a corporate needle. You want Universal, Time Warner, Disney, and Fox sitting on the back of your couch, looking over your shoulders? Write your congressperson today. No really, *I mean it*.

Whew! Deep breath, Jim! That's better. An additional warning I'd offer if you're tempted to check out torrent search engines is that some of them are cesspools of spyware. **My Spy Sweeper** <www.spysweeper.com> software fought off several attacks while I was researching this column. Your hard drive may need a good hot shower if you click the wrong site. Why not try some of the excellent legal torrent search engines like **Common Bits** <<http://www.commonbits.org>>, **Legal Torrents** <<http://www.legaltorrents.com/index.htm>>, and **Prodigem** <<http://www.prodigem.com>>?

shorts

Like most people, I watch a lot of movies, but I must say that I am more often than not disappointed by the SF and fantasy offerings of the big studios. But filmmaking is in a creative ferment just now as the means of production fall into more and more hands thanks to the digital video revolution. It's amazing what some very creative folks are accomplishing on shoestring budgets. Two showcase sites for this work are **AtomFilms** <<http://www.atomfilms.com>> and **IFILM** <<http://www.ifilm.com>>. AtomFilms specializes in shorts; there is a wealth of content to explore here. If you do nothing else,

check out their Academy Award Hall of Fame page. As I write this, there are ten outstanding nominees in the short film category, many with a decidedly fantastic bent. The Polish-made *The Cathedral*, for instance, is a visual tour de force, while *Canhead* and *Adam* are very cool indeed. You may actually find yourself tearing up at *Harvie Crumpet*, which is narrated by the actor Geoffrey Rush. Next click over to the **SciFi Section** <<http://www.atomfilms.com/af/action/scifi>> and watch the grimly provocative *50% Gray* and the wacky *The Wand*. IFILM also has a wealth of shorts for your viewing pleasure as well as trailers from commercial movies and music videos. Nifty pages include **User Videos** <<http://www.ifilm.com/uservideo>> and **Viral Video** <<http://www.ifilm.com/viralvideo>>. I can commend *Rockfish* and *Grayson* and *MacBeth* to your attention, but most especially **The Old Negro Space Program** <<http://www.ifilm.com/ifilmdetail/2667497>>, which is a sendup of all those Ken Burns documentaries, only with a definite alt history twist. Warning: if you value your keyboard, at no time should you drink anything while watching this hilarious little film. Parody is, of course, a staple of many of the short films you'll find here; the current rage is to mashup *Brokeback Mountain* with any number of buddy films to point up hidden gay readings. Worth looking for on IFILM are

Brokeback To The Future and *The Empire Brokeback*. Oh R2, oh 3PO, who knew?

exit

Another staple of these short film collections are parodies, homages and fan commentaries on the two enduring science fiction film franchises, *Star Wars* and *Star Trek*. You'll find plenty of each on IFILM and AtomFilms. However, neither of them have what may be the most ambitious fanfilm ever made. Click instead to **Star Trek New Voyages** <<http://www.startreknewvoyages.com/1024/home.php>>, the website of a plucky group of Trek devotees who have dedicated themselves to producing episodes that will finish the celebrated Five Year Mission. You may recall that mission "to explore strange new worlds, to seek out new life and new civilizations" was cut short by the abrupt cancellation of the now-classic show. Although STNV was originally an amateur production, a surprising number of old Trek hands have signed on to help, including SFX supervisor Ron B. Moore, writers David Gerrold and D.C. Fontana, and actors George Takei and Walter Koenig. The STNV crew seems to have avoided copyright hassles by making their work available for free. You can't buy them or watch them on any TV channel, you can only download them from the site.

To boldly go, indeed! O

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Our last story from Alexander Jablovok, "Market Report," appeared in our September 1998 issue. After much too long a hiatus, the author is writing again. He is most of the way through a novel, *Remembering Muriel*, and has several other stories in the works. In his new tale, he relentlessly hunts down the . . .

DEAD MAN

Alexander Jablovok

Near Bellefonte, Pennsylvania

The breakfast rush was over. Pushed-back chairs stood at angles around tables sticky with syrup. The waitress had slowed down and finally gotten the hair out of her eyes. She poured the dead man another cup of coffee.

"These yours?"

The waitress didn't answer the dead man's question. She turned, instead, to me. "Had too much Thanksgiving?"

I pushed the turkey and stuffing around on my plate. Chasing the dead man had made me miss the holiday itself, and this had been an attempt to give myself a treat. "Not hungry, I guess."

"So why did you order it? You didn't have to. I'm not your mother."

"No," I said. "You're not."

She prodded my backpack with a mustard-stained sneaker toe. "A gal could trip." Before I could stop her she stooped and tried to pick it up. "Damn! You travel with your barbells?"

"Sensing equipment." I had to say something. "Look for stuff along the old rail lines. You'd be surprised at what you can find."

"Really?"

"Yeah! All kinds of things. Lantern pieces. Spikes. Once I even found a telegraph key. Imagine the messages it must once have sent." Boring is best for concealment. It's the one thing no one ever tries to fake.

A big guy at a table near the door had been leading her with his eyes the whole time I'd been there. She'd managed to serve him steak, home fries, three eggs sunny side up, an English muffin, a bran muffin, three cups of coffee, and a mint-flavored toothpick without ever glancing at him. He'd been glancing at our conversation, which made me uncomfortable, but he now clapped on a fluorescent orange hunting cap and lurched out, leaving a \$10 bill folded into an origami swan balanced on top of a napkin dispenser. The waitress scooped it up and, again without looking, unfolded it and put it into an apron pocket. She snapped a wet rag and wiped down the checked plastic tablecloth.

"Well, don't get your ass shot off out there," she said to me. "First day of the season, everything that moves looks exactly like what they're after."

"Don't worry. I found what I was looking for."

She shifted her gaze to me. "Oh?" Her eyes were gray. Nothing spectacular at all. "And what was that?"

I was getting too chatty. "Just some leftover junk. It's not really what you end up finding. It's the sport."

She snorted. I had just demonstrated that I was as dumb as the rest of them.

The dead man was waving his cup again. When she stooped to pour, he held the cup away, balking her of her prey. "These yours?"

"What makes you think that?" A half-dozen watercolors hung on the woodgrain-vinyl wall, between a clock that peeked out of a print of mallards taking off from a slough and a rack of state capital plates with most of the states missing.

"I don't know." The dead man put on a sucked-in-cheek connoisseur expression. "Something about the style."

She shrugged resentfully. Though slender and flexible, she was older than she looked at first. But that shrug had no doubt always looked the same, distinctive even in a prenatal ultrasound. "Yeah." It was a confession.

"Nice work."

"Sure."

"No, really. Got a minute?"

She gazed out through the window at the parking lot, where silent trucks waited on the gravel for their hunters to return.

"You've, ah, got a theme, right? What would you call it . . . industrial crap versus weeds. Right there on the edge, where one becomes the other."

"If you say so." She started clearing the dead man's plate.

"I'm not done."

The way she yanked her hair back showed she didn't believe him, but she put the heavy plate, with its pink rim and smears of yolk, back down.

"I like this one. Rusted pump housing among spring skunk cabbages. And this . . . crumpled paper bag rhyming with the dried oak leaves around it. You don't call that a theme?"

"I call it something I saw."

"You saw this one too?"

A pause. "Sure. I had to look. Made me late to work. Would you pass it by?"

"I wouldn't pass it by, but I wouldn't know what to do with it either."

I snuck a glance, even though I didn't want the dead man to know I was paying attention to him. A pair of frog legs stuck out of freshly rolled asphalt. I couldn't figure out how she'd done it, but it really looked like steam still rose from the pitch. The spotted legs gleamed with pond.

"Well, I didn't either. Boss says it puts people off their feed."

"He still lets you hang it."

"He's got to, doesn't he? Who else would work here?"

The dead man's body had been through a crash into a bridge abutment and a lot of fugitive life he could in no way have been expecting. He looked pretty good, considering, even heavy, with a roll pushing out against his corduroy shirt. When I got hired, I'd spent a bit of time talking to the dead man's uploaded personality. His voice had been synthetic, so I hadn't been able to get any clues about what his body would be like from that. He'd sent me a picture of someone a few years younger than he'd been when he had supposedly died. Vanity never disappears, I guess, even when the body does.

Although this body had not. That was the problem I'd been hired to fix. I hefted the bag that carried the upload gear I'd be using on him. Not quite barbells, but it was heavy.

It kept me in shape.

Near Monticello, Utah

"**W**hat are you drinking?" the speaker asked from the railing where I'd balanced it.

"Bourbon."

"I always liked bourbon."

"What do you do now instead?"

"I still have the taste, but it makes no sense to me now."

I swirled the bourbon in my china teacup, wondering if the mike mounted behind the speaker was sensitive enough to pick up the slosh.

The speaker chuckled. It sounded too much like a real person's voice, all the way down to the occasional phlegmy throat rattle. If it was intended to put me at my ease, it failed. That voice was a deliberate choice. I preferred those that came down with roaring multi-octave voices like cherubim. I could always turn down the volume.

"Don't get ticked off, Ian. I could taste that stuff better than you can. But there's no surround, no context. No associations with buddies, with status, with sex. Until I uploaded I never realized how much I depended on clever marketing to enrich my phenomenal world."

The cottonwoods in the wash creaked in the dry breeze. A cottonwood is less a tree than a giant weed. Dropped boughs littered what was supposed to be my lawn, but was actually a place local teenagers came at night to confirm, yet again, that beer cans did not burn. The last cloud-burst had traded a shopping cart for the two radials that had formed memorial arches in the bed of the wash for the past year. It lay with its

wheels up, half buried in the sand. Someone must have pitched it off the highway bridge a mile or so up.

"So the question is," he said, "if I take a sip of Maker's Mark, and I've never seen an ad for it, have I really enjoyed it?"

I drained the china teacup and filled it again. Once, a few months ago, I'd thrown it at a 4x4 that had speakers blasting from the roof, in case a mountain goat on a cliff somewhere had missed out on how often hearts get broken. The next morning I'd found it, standing pertly on the yellow line, handle snapped off but otherwise undamaged. It was now my good-luck drinking cup.

"It pays to keep old paradoxes updated," he said. "Who cares about trees? It's just this: our minds are created by interaction with other human beings. Being social is why our minds exist in the first place. We can never escape that."

"You want to know if I've made any progress."

"The thought had crossed my mind, yes."

"I— No."

"None at all?"

"You've vanished completely. I have absolutely no idea where you are."

He chortled, delighted despite the setback. "So I'm smarter than you thought."

"No," I said.

"What?"

"I mean it's not that you're so smart. That's not why I haven't found you."

"It doesn't pay to insult your employer like that, Ian."

"Look," I said. "When you had a body, do you think you could have gone on the lam and evaded a sophisticated surveillance net for a month? Tell the truth now. Because, you know what? If you don't tell me the truth, I'll never find you."

"My body. You'll never find my body."

"That's you, you know. Not some zombie. It's you. You inside a body. Kind of the way you lived your entire life."

"That's like saying, 'it's you, only it's somebody else.'"

"Okay," I said. "It's tough talking with an under-evolved grammar that doesn't have a clear distinction between third-person silicon and third-person carbon. Sorry."

"Ian," he said. "I hired you to find me—the non-uploaded version of me, the leftover me, the me that somehow didn't end up dying the way it was supposed to. And you haven't gotten anywhere. That's not making me happy."

The uploaded always have issues. They won't admit that, but they do. The body was, if nothing else, a very hard-to-counterfeit seal of authenticity. Lacking a watermark with quite as much heft, uploads always suffered from a bit of imposter syndrome, though they would never have admitted it. The problem's way worse if there's a body running around with a version of the original mind in it.

Though this time the problem was more complicated. My client thought the upload had been interrupted before the positions of the last little ves-

cles and the voltages of every action potential had been coded and transferred. He felt out of focus, not quite all there. He needed access to his old brain.

Of course, complete access would destroy that old brain. That was just part of the way these things worked. He was the legal owner of the body, and was responsible for "funeral expenses, or other expenses incidental to disposal of remains." My fee was that incidental expense. Legally, I would be completing an upload still in progress, and then taking care of what was left over.

"If I'm going to get anywhere," I said, "I need you to answer my question."

A long pause. "No, Ian. I couldn't have gotten away from you."

"So you had help."

"Looks that way."

"But you told me—what?—that you died in a car crash. Out on the highway somewhere."

"A road heading for I-80, west of Grand Island. I spun out on some wet pavement."

"I've heard of people planning things like this. Going up, leaving their bodies too: it's like some weird kind of sex, where you reproduce your mind instead of your body."

"I've already told you, Ian. You think I'm yanking your chain? If so, I'm paying well for the privilege. But there's no conspiracy here. I thought I'd died in a car crash, and been successfully and fully uploaded. Then I find my body still lumbering around. I don't like it."

His body—the dead man—had popped up on a security cam in a 7-Eleven in Davenport, Iowa. The image was fuzzy, but you could see he looked like hell: bandages, splints, an osmotic minipump hanging under his arm. But definitely, defiantly, alive. He shaved in a service station bathroom in Moline. The DNA trace on the disposable razor was definitely my client's. His body's. And that was the last trace I'd found of the dead man. There, somewhere on the high bluffs above the Mississippi, he'd vanished.

I'd staked out every place he knew, or could take comfort from, the homes of friends, the town he'd gone to college in, kept an eye on art exhibits and cafes he might be drawn to. Nothing. He didn't even visit the grave of his wife, Carol, who'd died, for real, a year or so before his car accident. He had advice. Someone was helping him.

"Run me through that accident," I said. "Tell me what happened."

"Crummy driving," he said. "That's what happened."

He'd been in a hurry, on his way from his motel to a dinner meeting with an important client, and running late. It was late fall, and a patch of ice had stayed in the shadow of an overpass, while every other remnant of the freezing rain of the day before had melted. He'd been moving at the limits of the safe speed of dry pavement. When he hit ice, he had no margin for error.

And that was it. He spun out, slammed into the abutment, and bled out there, far from emergency services. He did remember being pinned in the wreckage, metal pushing into him through the vain protection of the de-

flated air bag. And he remembered approaching headlights turning the concrete abutment into a hazy column of light.

Then he'd come to, screaming, bleeding, dying. Not in an ambulance, as he might have expected, but, instead, in the back of a minivan crammed with electronic gear.

And that was the last thing he remembered. Presumably there had been a lot more, as his mind was transferred and beamed up, but the hippocampus stops converting short- to long-term memory during the transition, and protein synthesis went haywire, so there could be no memory of that time. So all we'd had to work with was a flash of red LEDs and festoons of cable harnesses, the fevered vision of a dying man.

"I'd interrupted him," he said.

"Who?" I asked.

"The guy. Whoever it was. The one who upped me. I was all bloody, you know, but still, when he grabbed me to pull me up onto the pallet, he got barbecue sauce all over me. He even got it in my hair, when he was sticking the electrodes on. I mean, didn't he even have a Wet Wipe, or something? Sharp, sweet smell, like amplified blood. . . . What a way for me to go! What was wrong with him? The bag from the takeout was crumpled on the floor, and the ribs were lying in one of those cardboard trays. He even took a few more bites while he was working on me, like I wasn't dying right in front of him."

If there was a decent place for barbecue in Grand Island, Nebraska, I knew who'd be able to find it.

What the hell was Barnaby up to, uploading random dying strangers he found on the highway? And then coming up with elaborate schemes to enable the body to escape detection? He'd dropped out of the business a long time before. None of it should have mattered anymore. My old friend and mentor. I had no desire to track him down.

My mother would know where he was.

I yanked at the slider. It ground to a halt in its track. "Dammit!" I put my weight into it, but that just wedged it deeper.

"You should clean the sand out of that regularly."

Like any parent, my mother knew how to offer utterly necessary advice in such a way that it would automatically be disregarded.

"I know, Ma."

"How's everything going?"

"Good, good. Sorry it's been a while. I've had some demanding clients."

"I'm sure some of them take a lot of emotional investment."

"You don't know the half of it. I knew you'd understand, Ma. Hey, I was just remembering some things, and I was wondering . . ."

"You should just say things, honey."

I took a breath. "I know that."

"So. . . ."

"You talk to Barnaby lately?" It came out in a rush. "I mean, I know you guys used to keep in touch. No Christmas cards, I bet, but he felt some kind of bond with you, right? He used to tell me that. And you knew he'd just been doing what he was supposed to. . . ."

I trailed off. I'd filled as much void as I could, but of course, there was an infinite supply.

The night had really cooled off, and the bourbon had lost any ability to keep me warm. I stood with my heels on the edge of the porch. It creaked under my weight, but held. Out in the darkness, I heard the childish yip of a coyote.

"What do you want?" I could barely hear her.

"It's like this. I—"

"Can you take some constructive criticism?"

I bit back on words I would have regretted. And which would have made sure I never got what I needed. "Sure. Love it. Lay it on me."

"When you start out with 'it's like this,' I know what you're going to say next is a bunch of crap. So don't say it, okay? That way we can both pretend we're talking sense."

"I need Barnaby." I squeezed the words out of a tight throat. "For this job. He knows something I need to know. I have to talk to him. He would tell me, you know. He was really happy—relieved, I guess—that you would communicate with him. He'd never have given up on that. It absolved him of something. Where is he? I know you know."

"Leave him alone," she said. "Leave *me* alone."

"I can't do that. He's out there. And he knows something I need to know."

"I'm so sorry, honey. About . . . everything."

"That's all right, Ma."

There was a long pause, and I thought she was gone.

"Honey. Just ask him, okay? Nothing else."

"I just need a lead. Something."

"You're sure he's the one who can help you?"

"Yes."

She told me.

"Thanks, Ma. I'll call you."

I went into the kitchen and made a peanut butter sandwich for the road.

Near Bellefonte, Pennsylvania

But I hadn't called her—not since I'd talked to Barnaby. And she hadn't called me. That had been the longest time we'd gone without talking since I met Barnaby in the first place.

Let the dead man enjoy himself critiquing the senses and flirting with the waitress, I figured. He didn't have much longer, now that I'd finally caught up with him. I finished my coffee and went to call my mother.

The diner no longer had a phone of its own, but people still used the bathroom hall for a little communications privacy. The wall was covered with penciled numbers, in between editorial comments like "Bitch!" "Get on with itititititIT," and "Big crusty loaf of French (Italian?) bread."

"Ma. You there, Ma?"

Static, way more than I usually got. But I could feel her presence on the

other end, like when I was a kid and would go into her room to hear her breathing, and know she was alive.

"Ma!"

"What did you do to him?" Her voice was suddenly sharp in my ear.

"Barnaby? I just talked to him . . . I swear. He, um, he looks pretty good, considering. I mean, he's really getting on—"

"He was picked up by an ambulance. He's in intensive care. He might live, they think."

Poor Barnaby. He'd looked like crap, but I'd really thought he'd live forever. . . . "I didn't have anything to do with that. He was absolutely fine when I left him."

Silence.

"Ma! Please. . . ."

I waited for a long time, but I got nothing else.

When I came back into the dining room, the waitress was cleaning the dead man's empty table. I slung my gear and ran for the door.

"You want me to wrap this?" she called after me.

"Have a good holiday season," I said. "If I don't see you."

His car door hung open. I'd taken care of the starter before going in. Clearly, he'd figured that out in a couple of seconds. Quick thinking. My client kept telling me how smart he was, but considering the source, I hadn't paid much attention.

The ridgeline rose steeply above the gravel parking lot, hazed with bare oak branches. Here and there clumps of dry leaves hung on. The lumps of squirrels' nests hung exposed. The sky was bright blue.

I heard branches thrashing and snapping, upslope. I followed. The underbrush was savage, the biological precursor to concertina wire. After a few minutes of fighting, I found a watercourse. If I bent down, I missed most of the branches. Rocks turned under my feet. I saw the scrapes and footprints that showed the dead man had reached the same conclusion I had.

But what did the poor bastard think he was doing? There wasn't anywhere for him to go anymore. From what I'd seen, despite his desperate need to hold on to his body, he hadn't taken very good care of it. Pushing uphill would strain him. I figured he'd be hitting a wall in fifteen minutes or so.

The watercourse grew steeper. This was probably close to a waterfall when it rained. Tree roots criss-crossed above me. Their sharp ends jabbed down at me as I grabbed them. I had to lean way back and feel up with my fingers past where I could see. They were wet and slippery.

I finally found one that was rougher and drier than the others and hauled myself up. It sagged under my weight. I got my elbow into a stable crook and looked up—to find myself staring at the muddy tread of a sneaker. The dead man put his foot in the middle of my chest and, not hurrying at all, pushed.

I lost my grip on the wet roots and fell backward. I bounced, hard, and rolled. Each rock took a punch at me on the way down. I finally came to a stop, face in the mud. A thrashing from above, then silence.

I checked the gear first, then my body. Both looked like they could still do the job. I started up again, moving more carefully this time.

Above the waterfall, the forest opened out. I couldn't see where he had gone. It might have been up the steeper ridge face to my left, or up the open valley to where the ridge hairpinned around, forming a high valley.

Someone cleared his throat. I looked up. A guy with a gun stood on a rock outcropping.

"God, you make more noise than a crashing space station." It was the hunter from the diner, the one who'd left the origami swan for the waitress. He still wore his fluorescent orange cap. "I've got to get you the hell off these slopes. Want a beer?"

Suburban Phoenix, Arizona

"That was after we sent up that Wilson woman." Barnaby shuffled around his house in one worn slipper and one new one with a price tag still dangling from its heel. I followed. Slowly. We went around—kitchen, dining room, living room, entry, kitchen again—twice. "Wanted to send her dog up too. Had the cash, but . . . just what the universe needs, an immortalized little yapper in permanent psychosis because there aren't any silicon butts to sniff. . . ."

His voice was much lighter than I remembered, and he had a tremor in his hands.

"Barnaby—"

He glared at me. "You want to go up, eh? Want to get scooped out from behind that pretty mug and sent right upstairs to transparent life eternal? Well, you better have some cash, that's all I can say."

"Do you always ask for cash up front?"

"Do I look like an eleemosynary institution?" That was a favored phrase, appearing in his speech now like a fossil. He chuckled, then coughed rattlingly. "Damn! It's all fluids, you know, at my age. They collect everywhere." A coughing fit. It was a few minutes before he could draw breath. "Like a head of lettuce forgotten at the back of the crisper . . . shuck that bod, sonny. Now, if you can. Or you'll get what's left all over your hands."

"Oh, Barnaby." Not much of his mind was left. I was surprised by how much that disturbed me.

"Don't worry about Barnaby." Only his crankiness was left. "Barnaby's fine."

"Do you know who I am?"

"Nah. . . ." He sounded dubious. "All you clients . . . think I can tell you apart? Or remember a damn thing about any of you? You go, and all's I got left are the smelly carcasses. You ever think of that? Nah, of course not. It's just dirty underwear to you. You don't even toss it in the hamper . . . you want a drink?"

I sighed. "Sure."

"You still favor Maker's Mark?" I gave him a quick glance, but he still

looked like a senile oldster. A chance collision of neurons? Or was he making fun of me? "I can't taste a damn thing anymore, myself, but I can still get drunk. Just let me find my glasses here so I can figure out where it is. . . ." He fumbled on the front of his stained terrycloth bathrobe, where at least three pairs of glasses dangled on cords. "Race between sense and the senses to see who gets out the door first."

"I'm looking for somebody, Barnaby."

"So'm I." He looked bleak. "Me. Seems I sent most of me along, went into the station to get some smokes, and missed the bus."

"It's somebody you sent up, about a year ago."

"Don't talk about who I sent up. That's gone."

"I need to know, Barnaby."

My voice had gotten a little sharper than I intended. His eyes, blue-yolked eggs behind his glasses, glowered at me. "We all got needs. Yours, I think, is some smooth-sipping bourbon."

We had made it back into the kitchen. Barnaby squatted down and opened a cabinet by the sink. He yanked out a tangle of plastic shopping bags, a half-full box of Cocoa Puffs, a couple of cans of franks and beans, and a loaf of soft bread whose side had been attacked by mice. He prodded the gnawed hole intently with a bent finger. After a few minutes' thought, he pulled open a drawer, dug through a mess of sockets, extension cords, junction boxes, and light bulbs, and pulled out a roll of transparent packing tape.

"Could you peel this off for me? My fingers. . . ."

I helped him do it. He pulled off a length, taped up the hole in the bag, and put it on the counter. Then he squatted down again, reached way into the cabinet, and pulled out a bottle of Maker's Mark, red, fake sealing wax dripping down its neck. The bottle had never been opened.

"I have to say, Barnaby, I'm impressed." I twisted the bottle open and poured two dusty glasses. "He couldn't have paid you. You couldn't have made any deal. You were just driving around, finishing up dinner, listening to something on the radio, and came across a spun-out car. You took a dying man, sent him up, just like that. Angel of mercy."

Barnaby sat, scowling, at the kitchen table, as if waiting for a waiter to show up with his soup.

"But he lived. Who expected that? So you ginned up some kind of identity for him. I know how you work, Barnaby. Believe me, I do. I just need to find him. That's all."

"I've had accidents in my day. I remember once, I was driving in the rain . . . *driving* rain, I guess you'd call it, when this guy on a motorcycle, with a *sidecar* if you can believe, came barreling toward me going the wrong way—hey!"

I grabbed him and pulled him out of his seat. He was surprisingly heavy and fleshy, not the bag of bones I had expected. "Barnaby, this is serious! I need to find him."

"You always were a miserable shit," Barnaby said. "I took you in, showed you the ropes, kept you *alive* . . . I didn't have to, you know that? I didn't have to."

He stopped talking then, because he couldn't breathe. His glasses had

fallen back to his chest. His white hair stood straight up. His eyes looked past me, like I wasn't even there, like I wasn't choking the life out of him.

I let him drop back into his chair. My mother hadn't wanted me to come here. She'd been worried that I'd . . . what? Tie Barnaby down and torture him for the information? Kill him?

Parents have such strange ideas about their kids sometimes.

I pulled open the front door and almost fell over the two dead plants in flowerpots that stood on the front step. I'd forgotten that a suburban front door is purely symbolic, and that I had actually entered through the garage.

"Wait, wait, wait." He shuffled after me. "Ian. . . ."

I turned and waited.

"Ian, I didn't mean . . . it's good to see you."

"It's good to see you too, Barnaby."

He put his hand on my upper arm and looked at me. Was he remembering the first time he had really looked into my face, while I lay screaming on a lawn in the night?

Probably not. He was probably, again, trying to remember who I was.

"You need it?" he said.

"I wouldn't have come here to bug you otherwise."

"You're not bugging me," he murmured, then took a deep breath. "You know what? All my career, I've gotten rid of bodies. They were nothing. Leftovers. And I'm not leaving this one. I'm not going up. Too much of me's gone already, for one thing. I waited too long. I wouldn't want to live forever with only this much personality left. But it's more than that. This sack o' crap is me. It doesn't just hang off my brain like a string of snot. It's *me*."

"Got it."

"I gave him good cover: Dennis Nadel. Don Don to his friends."

"Don Don?"

"Part of my excellent service. Good kind of nickname, fossil of a stupid joke someone once made in high school after a visit to a tiki-headed Chinese restaurant. One of those things that sticks, like falling down and chipping your tooth because you were fooling around while lining up to go into school, or the way you learn to pronounce a word wrong by reading it and never quite get it right. Like you." He'd even stopped shaking. "Ian: my little accidental, defining detail."

"Mom says 'hi,' by the way."

"Sure she does."

"Why'd you do it?" I asked.

"You mean, keep that guy alive?" He shrugged, a movement that shook a lot of bones. "I was a little loopy. Well, okay, five beers and a whiskey sour drunk. Saw it happen, right in front of me. Guy wasn't paying attention to anything, just went smoothly off the road, never even slowed down. Bam! Little crunch, I heard it. I almost drove right on by, it was just like nothing had happened at all. At the last second, I stopped. I had all my gear, I was pumped, I just went to work, not even thinking what I was doing. I mean, Ian, I've been doing this a long, long time."

"I know," I said. "I know just how long."

He didn't pay attention to me. "I was just kind of showing off, I guess. Not to anyone. Oh, God, maybe, our ultimate upload. I don't know. I mean, it's what I do. What I was good at. That's all."

"But he wasn't dead."

"See how smart you've become? And you were so unpromising, at the start. . . . Yeah, he wasn't dead. And he wasn't about to die. Not by a long shot. I was fooled by all that blood. Showing my lack of decent medical education. So he was a complete, ugly mess, but not at all dead." Barnaby swallowed. "He started in begging me. He knew what was going on. He knew I'd be hitting the 'destructive read' portion of the evening's festivities pretty soon. And you know what? Like anyone else, he saw no reason he had to die in order to live forever. Had kinds of issues. He ripped off the wires, was about to pull the skull plug out . . . I stopped him. Talked him down. Then I took him to an ER, hundreds of miles away, in Des Moines, where someone owed me a favor. And he was still alive when I got there. Not ab-machine spokesmodel healthy, but still pumping the blood around."

"So you cleaned his identity and set him free. Barnaby, buddy, you've got to stop doing stuff like that. It screws things up for the rest of us."

"Well, you know what? You'll get your wish. I'm not doing any of that shit anymore. And if you're smart, Ian, you'll do the same thing. Give it up."

He seemed to be having some trouble breathing. I grabbed him under the arms and hauled him into the living room. Every horizontal surface was covered with crap. I knocked a stack of books and magazines onto the floor with my foot and plopped him down on the couch.

"I can't give it up," I told him. "It's all I've ever been able to do."

He waved a hand at me, but didn't say anything.

"You want something, Barnaby? Glass of water?"

He shook his head.

I poured one anyway, and put it on the coffee table in front of him. "I'll say 'hi' to Don Don for you."

Near Bellefonte, Pennsylvania

The hunter had popped up an insulated shelter. Inside he had a few display screens, a quartz heater, a sling chair, and a portable refrigerator. The screens held topo displays, overlaid with ghostly IR indications.

He pulled two bottles out of the fridge. "Hunting's thirsty work. Puts you right in contact with the primal, right? What makes us human."

"Right," I said.

"What you after, if you don't mind my asking? Not a good time to be wandering around."

So everyone kept telling me. "My buddy's the experienced hunter. I wanted to see what it was all about, and he agreed to bring me along. But I stopped to look at something, and he kept moving. He lost me."

"I think I saw him. Moving fast, upslope. Nothing up there, you know. Maybe he's not as good at it as you think. But let's take a look. . . ."

I sipped my beer and watched him hunt. The screens tracked up and down the hill, showing up hot spots.

"There's a couple of guys up here, other side of the ridgeline. You can see their breath puff out. Suppose they're laughing about something?" He peered at the screen, as if suspecting the joke was on him. "Been lying back there since before dawn. Canny. But, look at this." He scanned further up. "They're sitting there, patient boys, and there's a deer lying up in this thicket right over here, not a few hundred yards away. See him?" A rough oblong of heat, somewhat larger than a person, lay motionless. "I'll find your buddy, but first . . . let's show those two jokesters a thing or two." He picked up something that looked like a videogame controller. Crosshairs appeared on the screen, the intersection resting on the front third of the covert deer. "Come on."

He grabbed the gun and a tripod, and we stepped back outside. After the warm air of the insulated shelter, the wind cut. He set the tripod down on stable rock. The legs automatically leveled. The hunter looked down at LEDs on his controller. "Gotta do windage. Next model up would do that automatically—it's got Doppler radar, the works. But yours truly wanted to save some green . . ." He tapped keys. Silently, the gun rotated on its mount. The tripod rose up, and the barrel declined slightly. Its muzzle zeroed in on a prey neither of us could see, then stopped, waiting for the final command.

"We're at the limit of range, so I'm using a high-penetration shell. Gotta be careful with something like that. You could punch through a car a mile away, if you're not careful."

But he wasn't even bothering to look off across the creased ridges to where the deer lay, awaiting a day's end that it would never see. Instead, he stared back down the valley, toward the diner and its pickup-filled parking lot. The waitress was just visible out behind, hauling heavy trash barrels, shouldering them, and pouring their contents into the Dumpster. Even at this distance, you could see her bony grace.

"Someday, maybe, they'll invent something for hunting that." And, for a moment, he looked tired and sad. "And we can completely screw that up too."

Then, still looking at the diner, he thumbed the controller's red button. The gun snapped, a surprisingly discreet sound. No smoke. It was almost as if nothing at all had happened.

"Let's see how we did," he said.

Inside, on the screen, the cross hairs blinked red. The deer had not moved. The hunter brought up exact temperature data. For a second, it showed nothing. Then the tenths of a degree column started coming down, bit by bit.

The hunter released a breath. "Got the bastard." Then he chuckled. "And those two great white hunters are still hiding back there, waiting. Morons!"

More puffs of bright air from the other hunters. He scowled, refusing to be mocked. "Now, let's find that buddy of yours."

Marietta, Georgia

Later, I realized that they must have already been at work for quite a while when one of them knocked a bowl onto the floor and woke me up.

Blankets were piled up on me, and a ski jacket's sleeves were tangled around my neck. I must have gotten up to throw that on, though I couldn't remember doing it. Mom always kept the air conditioning cranked. The orange face of my always-buzzing alarm clock told me it was a little before three AM. I shivered in my cotton PJs. Summer PJs, though it was never summer inside our house. While I thought about that, I hung the ski jacket back up in the closet. It would have bugged Mom to see it. She had a thing about the seasons being in their right place.

If only it wasn't so cold.

Voices muttered. She'd fallen asleep with the TV on again. Sooner or later a jagged laugh track on an old sitcom would wake her up. I walked quietly across the thick carpeting. She was sick. She needed her sleep. But I didn't like looking at her in the blue light of the TV. It made her look dead.

But there wasn't anyone in the bedroom, and the TV was off. The blankets and sheets were thrown around on the big bed she'd once shared with my dad. It was her being sick that made him leave. She made crazy choices, he said. He couldn't live with them. He stopped in the driveway the day he left and asked me to please take care of my mother and make sure nothing bad happened to her.

Hell of a thing to ask a kid whose mother is dying of liver cancer. He didn't get a chance to give me any follow-up instructions, because he died of a heart attack at work a month or so later.

The voices came from downstairs. She didn't usually fall asleep in the living room, but she'd been getting weaker. I went to the bathroom and got her pills out of the medicine cabinet, so she'd have them by her side when she woke up. Waking up was like getting ripped open, I'd heard her tell someone once, when she thought I wasn't listening.

The living room was dark. No TV here either. Light came from the kitchen.

"Come on, come on," someone said under his breath.

"Just a second." The second voice was irritated. "It's a delicate—"

"Never mind, Barnaby. Just do it. We got a few millimeters leeway, don't we?"

"Exact is best."

"We'll lose her. Can't do much with blood pressure in the single digits. Hit the brainstem."

"I'm doing it."

I heard the chilling sound of drill hitting bone.

"Got it, got it. Good."

"Okay," Barnaby said. "Now lay off. What do you got?"

"We've got all the backups already spooled. Last one three weeks ago. That's more than 99 percent of the personality. I don't know why we have to come here for this. . . ."

"Part of the deal, Jeff. We want it all."

"But it's all pain. Pain and suffering. Maybe she wouldn't want it, if she could tell us. Or we could feed her the straight events, without the pain."

"Is it really experience if it's stripped of pain?"

"Jesus, Barnaby," Jeff said. "Quit with the philosophy. This isn't a freshman dorm."

I crept through the dining room, up to the door. I could smell something sharp and sweet, a smell I only later recognized as barbecued baby back ribs, from the place down in town.

My mom lay on the kitchen table. She was naked. Her skin was all puffed out, her veins were thick, and she had marks all over her body. She'd never let me see her body, even before she got sick, and so I stared. Later I was ashamed, so ashamed I was sick, but at that moment I stared. Her large breasts stood straight up, even though her belly and sides and thighs sagged down. I was too young to know that was odd, but the way they stood made it impossible not to look at them.

Her head tilted away from me. For a second I thought she'd grown a ponytail. But she didn't have any hair. The chemo had taken care of it. A cable stuck out of the back of her head.

An alarm beeped. "Jeff! For someone who was so worried about her blood pressure. . . ."

Jeff pulled something from behind his ear and jabbed it into my mother's chest with a powerful sweep of his forearm.

"Very graceful," Barnaby said. "You enjoy shredding cardiac muscle?"

"We only got to hold the body together for a few more minutes."

I must have made a noise, because Barnaby looked up and saw me.

"Who the hell are you?"

"What are you doing to my mother?" I screamed.

Jeff looked over his glasses at Barnaby. "You didn't check for the kid?"

"It wasn't in the records! Idiots. . . ."

I ran. I tripped over the cables that criss-crossed the kitchen, yanked the back door, and plowed through the latched screen door. Night hit me, wet and hot. I ran barefoot across the wet grass.

Barnaby ran after me. I could hear his breath, and the slap of his feet on the ground. I dodged a grab, went around a hedge, and pounded past the garage. A minivan was parked in the driveway, cables snaking out of its open side door and a small antenna pointing up at the glowing sky. A few lights were on in the houses around, but no one was out, no one knew what was going on.

A hand clamped on to my arm. We both spun around and landed on the grass, Barnaby on top. I rolled, kicked, screamed. No one heard me above their air conditioners.

"They didn't tell us, kid, you gotta know that." Barnaby had barbeque on his breath. "Or, maybe, *she* didn't."

"Who didn't?"

"Um, your mother, I guess. She is your . . . mother, right?"

"She's dying. What—?"

"She's going to live forever, kid. Forever. Think of that."

Nothing made sense to me anymore. It didn't even seem odd to be lying

on my neighbor's lawn with a pudgy, barbeque-sauce-scented guy pinning me, looking up at the couple of stars that were visible, and listening to someone's dog barking, irregularly but unrelentingly, at nothing.

"She never told you?" His voice got eager. "She made the deal when she got sick. A certain prognosis . . . look, it's bad, okay? I won't pretend it's not bad. I mean, getting your liver chewed out of you like that . . . but that doesn't mean anything, right? Exactly nothing. Zippo. Squat . . ."

He might have churned out synonyms for "nothing" for quite some time if I hadn't screamed, "You're killing her!" and tried to punch him.

I *did* punch him. After everything, when I thought about how I had acted and what I had thought, that was the only thing I felt really good about. He *oofed*, and I felt the tension in his body. He was mad. I felt even better about that. He might have beaten the crap out of me right then and there, and it would have been fine. It would at least have been a decent explanation of why I hadn't been able to save my mother.

"She *asked* us." His voice was hot in my ear. "Found out about us, came to us. She was smart. Only way. Only way to escape. With what she's got, she knew it was only a matter of time."

"What—are—you—doing?" I asked between sobs. "What did she ask you?" One of the dots I had thought was a star turned out to be an airplane. It crawled across the glow and disappeared.

"To be scanned. To be uploaded. You see . . . how can I say this . . ."

"You're going to scan her personality, her mind, and transfer it to some other sort of hardware?" I said.

"Ah . . . yeah, you could put it that way. Sure."

"And she's going to live forever."

"That's the general idea." He released the pressure on me, watching me carefully the whole time, and slapped my shoulder in approval. "You're a smart kid."

"I read stuff," I said. "Why do you have to be so sneaky?"

"Look, it's not like the technology's . . . *mature*, or anything. I mean, most of that stuff's something we kludged together. Theory's good, don't get me wrong. We got a brassboard, but a solid brassboard. We're beta testing, say. But try to get FDA approval for *that*. Big pharma's got them in its pocket . . . don't get me started. But, anyway . . ."

"What are you going to do?"

He looked away. "It's a destructive read, okay? To get everything out, all the final memories, everything, means taking the synapses right apart—"

He was still holding me, but not as tightly, thinking I had relaxed, was ready to play along and let them do their job.

"Hey!"

But he was too late. I ripped myself from his arms and ran toward the house. "Mom! Mom!"

Jeff was coming out, dragging a wheeled cart loaded with heavy equipment. Sweat soaked his shirt. He looked at me as I ran past, but was too tired to register any reaction.

"Let him go," Barnaby said, unnecessarily. "And let's get the hell out of here."

She lay dead on the table. The stink. Oh, God, the stink. That was all I

could think about. Shit, piss, rot. It was a few minutes before I could come up to her.

Her head lay on one side. They'd left a gaping hole in the back of her neck. And there was no hair to pull to cover it. I finally pulled some paper towels from under the sink, wadded them up, and pushed them against it. The van started up in the driveway. I almost ran after it. When it was gone, I was alone.

I climbed up on the counter and opened the cabinet. The bag of potato chips was carefully crimped down, the chip clip a grinning mouth with white teeth. The potato chips were stale. I had no idea how long they had been up there.

The phone rang. I sat down on the countertop and picked it up.

"Hello?"

A hiss of static, then a click. "Honey, what are you doing out of bed?" my mother asked.

Near Bellefonte, Pennsylvania

"What are you going to do to me?" the dead man asked.

He lay on the ground, trussed, half-naked, and already covered with electrode paste. It hadn't been hard to catch him, once he'd popped up on the hunter's screen. I'd nailed him while he was sitting on a tree stump, head between his knees, gasping for breath.

He tried again. "Would you mind at least telling me who you are?"

I didn't want to talk to him. There was really no point to it. I pulled gear out and set it up. The sooner I was done, the better.

"Please. . ."

"Who hired me?" I yelled. "You poor son of a bitch. *You* did."

"But I didn't . . ." He sucked a breath. "The ascended me? The me that interfering nutcase sent up before getting all pissy because I wasn't anywhere near being dead? Hah. That's not me. That's just the damn *movie version*."

"That's not fair." My client spoke out of nowhere. I hadn't contacted him, but clearly he had decided it was time for closer supervision.

The dead man was thunderstruck at hearing his own voice coming from the speaker. "Is that . . . ah . . . I mean . . ." He swallowed. "So what's it like up there?"

"Remember the day I . . . you and Carol took that hike in the Adirondacks? It was misty, almost dark in the trees, and when you got to the top, after all your hard work, you still couldn't see anything because there were trees all around? Carol went ahead, then called to you. And just when you got out to the rock ledge that stuck out, giving a view across Blue Mountain Lake and out beyond, the breeze cleared the mist and the sun came out and it seemed like you could see every leaf on every tree, across the ranges?"

"Like that?" the dead man said.

"Just like that, all the time."

"Sounds grand." The dead man sighed. "And I haven't even been able to get to Carol's grave. Barnaby told me that would be the worst thing. That I'd get caught right away if I tried that." He was shivering in the cold. He glared at me, blaming me for everything. "And see? I got caught anyway."

"Set him up and let's go." My client was brisk. My hunter friend wasn't the only one who didn't like seeing his target when he shot at it.

I knew the dead man already had an access port in the back of his skull. They'd probably put a patch in, at the hospital, but that would be easy enough to get through.

The dead man struggled against his bonds, but if he'd been an actor in a play about a hostage, I wouldn't have been convinced. "Something's gone wrong. It's been a year since he went up. Why now?"

I ignored him.

"He's not just clearing up some loose ends! That's what I'd tell you, if I had something to hide. I know what I do when I screw up. And he's no different—"

"Find any interesting pieces of railway up here?"

I looked up. The waitress stood on the slope just above us. She was dressed for the walk, with light hikers, nylon pants, and a dark-red windbreaker cropped at the waist. She'd tied her hair back. I hadn't heard her coming up. The wind whipping up the valley was too loud.

"This guy's trying to kill me!" the dead man screamed.

"Not technically correct," I said.

She reached behind her head and her hair billowed out in the wind. She hopped down the slope and tied her red hair ribbon loosely around the antenna. Before I could do anything, she stepped back, raised her arm over her head, and pointed down at the antenna with her wrist bent.

Another high-penetration shell from that damn computer-controlled hunting rifle ripped through the antenna with a smash of metal.

She looked at me. "He always watches me. Usually that's really annoying. But sometimes it comes in handy."

"If you let it come in handy," the dead man said, "you'll never get rid of him."

"There's always some kind of trap to fall into." Though she had saved him, she was expressionless as she stared down at the dead man. Her eyes examined him and the now-useless equipment. "I could see the one you were in. I almost let it go, but . . . I had the afternoon off." And then she smiled, a flash of sunlight through the trees, and then gone.

"I want to ask a favor," the dead man said through clenched teeth.

"What?"

"When you paint this . . . take off a few pounds." He looked up at her. "Just a couple. You'll still get the effect you want."

"What makes you think I'm going to paint you?"

"I know."

She shrugged. "Truth and mercy are not as incompatible as you think." She pulled her windbreaker off and put it over him. She was lean and beautiful, flushed with cold air. I didn't think that our friend the hunter was ever going to catch her. Or I hoped he wouldn't, maybe. She set off again, moving faster now, jogging up the slope.

"Consciousness is an illusion," my client's voice said. It had lost all the fake features of larynx and throat, all sense of background and foreground, and was just a message.

"If consciousness is an illusion," the dead man asked, "who, exactly, is being fooled?"

"Nothing dumber than playing word games with yourself," my client said.

"Some people say that consciousness is nothing but word games."

"I do know that consciousness is a kludge, an on-the-fly way of integrating a bunch of disparate processing systems that were evolved for different purposes at different times. We build a model of reality in our brains in order to deal with it, at a rate of maybe fifteen bits per second. And we call that model consciousness."

"But you don't need the model anymore," the dead man guessed. "Processing is infinitely faster, there are no archaic hardware modules, you don't need any clumsy rules-of-thumb to recognize a face or make a deal with someone."

"You got it. No need for consciousness up here."

"Hmm. So . . . you're not conscious? You're just faking it to keep us at our ease? That's really thoughtful of you."

"I am so conscious! But . . . I keep it around, kind of like a folkloric dance troupe wearing the colorful native costumes of an extinct tribe."

"I was always sentimental," the dead man said, mostly to himself. "Kept all sorts of old crap around. Pissed Carol off no end." He raised his voice. "If your consciousness vanishes, it's just like dying, isn't it?"

There was no hesitation. "Yes."

"Jesus." I finally had to break into the mono/dialogue. "You. You hired me because you wanted to reinhabit your body. Not pull its last bits of action potential out. You wanted to come back, before you disappeared altogether!"

My client didn't say anything.

"Really." The dead man was stubbornly unsurprised. "Don't you remember why the hell I hit that bridge abutment in the first place? The road was bone dry—"

"He said there was a patch of ice." I couldn't resist breaking in.

"Well, I would say that, wouldn't I? Being a spectacularly unsuccessful suicide."

"Carol—" my client said.

"She'll never know what a botch I made of it, will she? My one comfort. It's pathetic. Well, I've learned my lesson. I'm never going to kill myself again."

I turned away from them and pulled out my phone. The fall sun slanted steeply through the trees, making me feel that the entire world was tilting.

"Ma! I'm sorry about Barnaby. I know that you . . . maybe I've never forgiven him. I don't know."

The nice lady from Social Services had made arrangements to bury my mother and find me a foster home, but I escaped the first night and tracked Barnaby down. In my mom's desk I found all the paperwork for the upload. Barnaby hadn't had the sense to grab it.

"Ma!"

It wasn't just static I heard now. There were fluting notes in it, and complicated patterns of sound. She wasn't dead, she wasn't gone. But there was no one left for me to talk to.

"You did a great job," I said. "I'll always appreciate it."

The thing children always wait too long to say. She'd raised me from the day she died. She'd always been with me, all through my years with Barnaby, and beyond. She'd helped me track him down, and guilted him into taking me in. She'd done the best she could to make up for not being able to stay alive.

I turned the phone off.

They were talking, the dead man and his . . . soul? Quietly. I left my gear behind and started back down the hill. ○

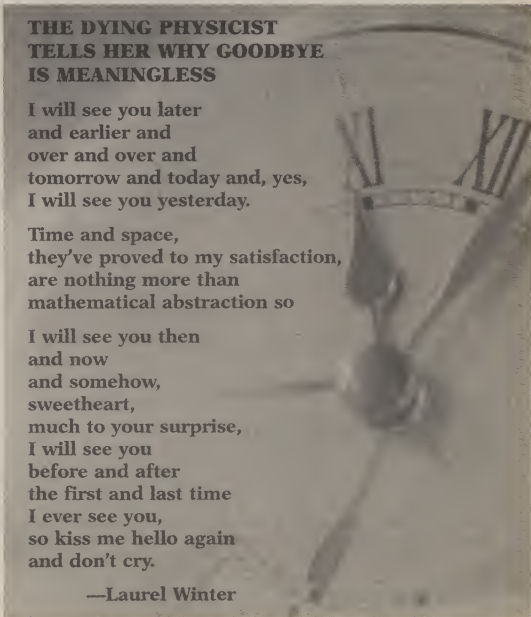
THE DYING PHYSICIST TELLS HER WHY GOODBYE IS MEANINGLESS

I will see you later
and earlier and
over and over and
tomorrow and today and, yes,
I will see you yesterday.

Time and space,
they've proved to my satisfaction,
are nothing more than
mathematical abstraction so

I will see you then
and now
and somehow,
sweetheart,
much to your surprise,
I will see you
before and after
the first and last time
I ever see you,
so kiss me hello again
and don't cry.

—Laurel Winter



FEATHER AND RING

Ruth Nestvold

Ruth Nestvold has sold several dozen stories to a variety of markets, including *Jim Baen's Universe*, *Scifiction*, *Realms of Fantasy*, and *Strange Horizons*. Inspiration for her current story came to her in the hillside garden of a temple in the outskirts of Taipei.

The line of cars in the single-lane street stretched as far as the eye could see—unmoving. Lindsay twisted the band on her ring finger and wondered how much longer she was going to be sitting in the stupid taxi. On either side of the river of colorful sheet metal, stores, open-front food stands, and soup joints sported signs in a hodgepodge of Chinese and Latin characters. A roofed market, with its bins of unknown, exotic produce, caught her eye. The strangely shaped purple fruit was much more inviting than a taxi that smelled like smoke and sounded like Mariah Carey.

The hotel was still blocks away, but she could use a walk; she'd get some of the pain and frustration out of her system, even if she did have to breathe exhaust fumes while she was doing it. Taiwan was wonderfully foreign, but the problems she had fled had followed her, twisting in her gut like acid at unexpected moments. All the things she'd relied on in her life were disappearing at once—business, money, husband. She'd been with Trevor since high school, and they'd started their software company Cleio just after finishing college. By the age of twenty-two, she already had the life she wanted, and she'd assumed she would have it forever.

Well, now it looked like she might be in this *taxi* forever. At this rate, she'd get to the hotel faster walking anyway.

Lindsay used her best impromptu sign language and smattering of Chinese to indicate to the driver that she wanted to get out *here, now*. After paying 150 Taiwanese dollars (all of five bucks) for her release and extricating herself from safety belt and back seat, she wandered into the market and another world. Bins of strange fruits that she had no words for stood in an open roofed area, and farther back she saw vegetables and herbs. Here the street sounds were muffled and the air fresher.

She picked up one of the wild, purple fruits—actually more like a psy-

chedelic pink than purple, now that she saw it up close—and a young saleswoman hurried up to her. Nodding enthusiastically, the woman sliced open the fruit and gave Lindsay a piece. The inside was white sprinkled with dark seeds. It looked like straciatella ice cream, and it tasted simultaneously sweet and sour, the fruit firm and juicy like kiwi.

For a moment, the fresh taste made her forget the knot of pain in her stomach; it was a good thing. She had to hold on to that.

She nodded and picked up one of the bright fruits, pulling her wallet out of her shoulder bag, but the young woman shook her head, waving the wallet away.

Lindsay blinked and smiled. "Shie shie." *Thank you.* Even after a week in Taipei, she couldn't get used to how different the attitude toward foreigners was here from anywhere else she'd ever been. No matter what time she entered a store, people brightened up and said, "Good morning!" proudly. Instead of being a nuisance, she was interesting. Her hair was straight and dark and her skin olive, but her eyes marked her as different. Lindsay suspected that to the young saleswoman, she was as exotic as the fruit Lindsay held in her hand.

She put it in her bag and left the market out the other side. She felt much better than she had stuck in traffic, much better than in the office of NGTS—Cleio's partner in distribution and localization—playing the role of competent businesswoman.

Much better than she had in Austin before she'd left.

No, she wouldn't go there now, wouldn't go to Trevor's painful revelation that she'd become more business partner than wife—and, of course, he'd fallen in love with someone else. She would go to the decadently colorful temple she had been admiring out of the windows of taxis all week, the temple with its red columns and green dragons and gold-tiled roof.

A week in Taipei, and she still hadn't had time to do any sightseeing. The schedule for the test of the English-language version of NGTS's new game *White Magic* was grueling—the only reason they'd gotten out of the office today before dark was because the network had crashed. But Cleio had already committed to a release date and couldn't back out now: the partnership between NGTS and Cleio revolved around reliable translation and distribution of each other's products.

Lindsay entered the temple, grateful for the muted lighting and bright colors and smell of incense. A little gray-haired man in slacks and shirt hurried up to her, bowing at the waist, and Lindsay wondered if there was something she was supposed to do. "Ni hau," she said, imitating his bow. She gestured toward the wealth of altars. "May I look around?"

The little man nodded and indicated with a hand motion that she should follow him. He led her up a flight of stairs, past more altars, and out behind the temple to a small section of tropical jungle rising up out of the busy city. Halfway up the side of the hill was an altar. The statue of a white goddess stood with a bottle in one hand, the other extended in what looked like an "okay" sign. On either side of her were figures resembling gargoyles playing with snakes.

Lindsay climbed the stairs to the goddess, sweating from combined tropical humidity and sweltering October heat that easily gave Austin a

run for its money. When she reached the top, she saw that worshipers had left all manner of offerings—from so-called “American cookies” to bunches of bananas, flowers, and bundles of the fake paper money burned for good luck in Taiwan—at the feet of the regal lady.

She smiled and shook her head, toying with the ring on her finger, which was swelled up from the heat. There was something about a goddess people liked well enough to bring flowers and cookies that struck a chord with Lindsay—as if the goddess were an everyday presence, a friend even.

Impulsively, Lindsay dug the psychedelic-pink straciatella fruit out of her bag and laid it on the altar in front of the goddess. Perhaps she should wish for something now. But what? That the deal with NGTS would go through—and Cleio would be eaten alive? Or that the divorce proceedings would disappear by the time she got home? Fat chance.

“Are you a follower of Kwan Yin?” a gentle voice sounded behind her.

Startled, Lindsay whirled around to find a lovely Asian woman at her elbow. Like most people here in Taiwan, she made Lindsay feel tall and wide. She seemed to be about Lindsay’s age, but at the same time older.

“Is that who this is?” Lindsay asked. “I was wondering.”

The other woman nodded. “Kwan Yin is worshiped as the goddess of compassion—she who hears the cries of the world. As a Bodhisattva, she achieved enlightenment, but rather than going to Nirvana, she remained on earth to help those in need.”

Lindsay turned around and looked at the statue again. “What a nice story. I’m glad I gave her the fruit.”

Her companion chuckled, and Lindsay turned to her with a grateful smile. The presence of the smaller woman was calming somehow, smoothing out the panicked fuzziness she’d been feeling so often since Trevor had told her he wanted a divorce.

“Your English is very good,” Lindsay said. “Where did you learn it?”

“I’ve had the opportunity to spend some time in England and the U.S.”

Lindsay nodded and held out her hand. “By the way, I’m Lindsay Gurdin.”

The other woman took it, bowing slightly. “Call me Ma-tsu. What brings you to Taiwan, Lindsay?”

“I’m testing the English version of a computer game for a partner company.”

“That must be nice, having games as your work.”

She shrugged. “Well, the business end isn’t always fun.”

“How do you like it here in Taipei?” Ma-tsu asked.

Lindsay gazed down on the colorful dragons frolicking on the roof of the temple and beyond, to the city she had only seen from the window of a taxi. “I haven’t really gotten around yet.”

“Ah, you must visit Yangmingshan Park. It is very beautiful, and not far at all.”

“I don’t know if I’ll have the time. I have to prepare for a presentation tomorrow.”

“You must get away, though. Promise me.” Ma-tsu gave her a beautiful smile that seemed to make Lindsay’s sorrows come loose from the knot in her stomach.

She thought getting away—running away—was what she was doing already, even if she didn't have the time to play tourist. She shrugged and returned the smile. "Perhaps I'll have some time on Sunday and can get to Yangmingshan then."

Ma-tsu beamed. "Good."

In the offices of NGTS, Inc., Lindsay could almost imagine she'd never left Austin. Not even the fact that everyone in the room, except her, was ethnic Chinese detracted from the American corporate look of the place; after all, a lot of computer geeks she knew back home were ethnic Chinese, just not as many of them wore suits.

She had to admit, though, that the atmosphere was a lot more relaxed than she'd been led to expect before she came.

Just not today, at least not for her.

She pressed the spacebar on her laptop, and the last slide in the presentation appeared on screen, a graph in blues and purples documenting Cleio Software's increase in profits in the last two years.

"As you can see," Lindsay said, training her penlight on the figures, "Cleio remains a growing company. As our Asian distributor, you are well aware of Cybera's continued popularity. Cybera III is in the works as we speak."

The vice-president of NGTS, Frank Shen, leaned forward. He was one of the ones wearing a suit. "But if you need us to invest in your company so much, the risk may be too great for NGTS."

Lindsay took a deep breath and tried to keep her panic at bay. "As pointed out in my presentation, Cleio is a solvent business. We've managed to make a healthy recovery since the tech bubble burst and stocks plummeted. We have the profits now, but with all the problems with the stock market ever since, we don't have enough capital for development."

Frank murmured something to his partner and then returned his attention to Lindsay. "Thank you very much for the information. We will consider the proposal and talk more about this next week, yes?"

"Certainly, as you prefer." She wished she could figure out what that statement meant, if it meant anything. Frank stood and shook hands with her and the meeting broke up. Lindsay closed the presentation and powered down her laptop.

"You like a green tea frappuccino?" It was Peggy Chiang, one of those who had worn jeans to the meeting. Next to her stood Robert Deng and Angela Liu—her Taiwanese lunch buddies of the last week.

"Come, I buy you one," Peggy said, taking Lindsay's elbow as she closed her laptop. "You need sugar."

Lindsay shook her head. "Was I that bad?"

"No, no," Robert said. "Not bad. Just nervous."

She let out a gusting sigh and allowed them to lead her out of the meeting room to the elevators. "I can't screw up. Cleio needs a partner."

Angela pushed the down button. "I don't think Frank wants to lose Cybera. Clara Lecto is one of the biggest celebrities in Taiwan."

Lindsay tried to smile. "As big as Mariah Carey?"

Angela grinned. "Not quite *that* big."

The Starbucks on the ground floor lobby of the building was full as usu-

al, so they took their drinks outside. It wasn't quite as hot as it had been the day before when Lindsay had met Ma-tsu at the temple.

Now that she thought about it, it was interesting that Ma-tsu had used a traditional Chinese name rather than a Western one. Everyone she knew here at NGTS had both.

"I met someone yesterday who didn't have a Western name like all of you," Lindsay said. "A woman named Ma-tsu."

Her three friends stared at her briefly, their coffees and frappuccinos halfway to their mouths, and then, as if on cue, they started laughing.

"I think this woman was joking with you," Robert finally said when he caught his breath. "Ma-tsu is a Taiwanese folk goddess."

"A folk goddess?" she repeated.

"The goddess of the sea," Angela elaborated. "She is worshiped in China too, but here in Taiwan we regard her as our own."

"Have you heard of Kwan Yin?" Peggy asked.

Lindsay nodded mutely.

"In Taiwan, Ma-tsu is associated with the goddess of compassion. They are often worshiped together."

Well, at least Ma-tsu-whomever-she-was hadn't been joking about Yang-mingshan. The red line bus number 5 took Lindsay straight there—a beautiful national park, just north of the city. She wandered through the gardens, looking for the trail leading up to the volcanic mountain, and hoped she would eventually be able to get away from the other visitors a little. The pace of Taipei was exhausting—and with the worries and heartache she was dragging around with her all the time, her energy level was low to begin with. What if NGTS was gambling on Cleio going bankrupt, so that they could buy the rights to Cybera outright? Did they want the game that much? If so, she could just give up and go home now.

Go home to an impending divorce.

But what was she supposed to do? Cleio's share of the profits from the English-language version of NGTS's *White Magic*, as promising as the new game was, would never be enough to cover the company's proposed business expenses for the coming year.

She gave herself a shake and tried to concentrate on her surroundings. On the lawn in front of her was a peacock, bright blue and proud of it, and she moved forward to get a better look. The peacock, however, seemed to interpret the move as an invitation and came purposefully in her direction, probably assuming she had food.

Lindsay backed away, right into someone on the path behind her.

"Oh, excuse me!" she said, and then, remembering where she was, "*Du bu qi!*"

"I understood the first well enough," a deep male voice with an American accent responded as she turned around.

He was tall and lanky with curly, shoulder-length hair, a riot of dark blond and rich brown corkscrews, and his wide smile was as friendly as his voice. The backpack slung over his shoulder looked as if it had seen better days, long ago and far away.

"So sorry," Lindsay said.

"Hey, no problem. It's not every day you get attacked by a peacock." He stuck out his hand. "I'm Joel, by the way."

She took it. "Lindsay." She looked back at the offending bird, but he was standing motionless now, neck stretched tall, eyeing them critically.

"Playing innocent," Joel commented. "But we know better. Hear me, bird?" The peacock cocked its head to the side. "No more funny business."

She laughed and the bird turned around and waddled majestically in the other direction.

Joel brushed his curls back with one hand and looked down at her. "What do you say we hike the mountain together? Trying to get by in broken Chinese gets pretty tiring after a while. Besides, we were thrown together by a peacock. Now if that isn't fate, I don't know what is."

Lindsay laughed again. Laughing—she was *laughing*. "Sure, why not?"

Together, they headed up the trail to Mt. Chihsing. "What are you here in Taipei for?" she asked.

Joel shrugged. "For? Fun. I'm traveling around, working when I can, you know."

Actually, she didn't know. She'd been to Mexico, easy enough from Texas, and she and Trevor had done Europe in three weeks for their honeymoon, but she'd never done the backpack-tourist thing, even though she'd once dreamed of it. She turned the ring on her finger and stared at the thick foliage on the side of the path.

"And you?" he prompted her after she'd been silent too long.

"I'm here on business."

"What kind of business?"

"I'm in computer game development."

"Wow, that sounds cool. Anything you've worked on that I might know?"

"Maybe Cybera?"

"Cybera? Hot damn." Joel stopped in his tracks and stared at her, and Lindsay felt a warm glow of gratification take hold in her chest.

He shook his head. "Clara Lecto is one of the hottest things in pixels. *Everybody* knows her."

The warm spot was growing. "Thank you."

"What exactly is your job?" he asked, walking again. On either side of them grew thick bushes and short trees, some cut back ornamentally, but some looking as if they grew wild, a small piece of jungle just outside the city.

"Actually, I developed the first version of Cybera with a friend of mine way back when I was in high school," she said. She was already sweating, although the incline was not steep. "We taught ourselves the programming we needed to do it. And when we ran into something we didn't know how to do ourselves, we enlisted more friends."

"You came up with Clara Lecto?" Joel shook his head, and his curls glinted gold and bronze in the sun. "Man, I can't believe I met someone so famous in the wilds of *Taipei*. Where'd you get the idea?"

Lindsay pulled a water bottle out of her bag, took a sip, and offered it to Joel. "I read this essay in AP English called 'A Manifesto for Cyborgs' and decided a female cyborg would make a great game character."

"So you designed her yourself?"

"Not like she is now, we didn't. Believe me, she's changed a lot in her twelve years of life. And in the original Cybera, the emphasis was more on puzzle-solving than hunting down bad guys."

He handed the water bottle back to her. "And what do you like more?"

"The puzzle-solving, actually. My favorite kind of games were the old-fashioned adventure games." Lindsay suddenly realized she hadn't mentioned that little twinge of dissatisfaction with her life to anyone in years. She wasn't even sure if she'd still been aware of it. After all, her life had been perfect. Hadn't it?

Joel pulled a rose-colored handkerchief out of his pocket and dabbed the sweat off his forehead. Lindsay found the surprising color charming. "Like King's Quest," he said, shoving the pink piece of fabric back into his jeans.

"Yeah."

"Then how come Clara Lecto turned into action-adventure?"

She shrugged. "Marketing. It was the wave of the future." She wiped off the top of the bottle and took another drink.

"Don't tell me—her boobs weren't as big either."

Lindsay laughed and choked on the water, and Joel patted her back.

"Bingo!" he said with a wide grin.

She gave him a stern look, trying not to chuckle.

"Have you ever thought about creating a new game that's closer to what you originally wanted Cybera to be?" he asked as they continued on their way.

Lindsay shook her head. "Can't. We just don't have the resources right now. Cleio's having financial difficulties—not enough capital to continue development on our big sellers, let alone invest in a new game that isn't as likely to sell well." She heard herself confessing her financial woes to him with surprise. She usually didn't open up so quickly to strangers.

Joel stopped, taking her elbow and giving it a slight shake. "But what if you sold out, did your own thing? You've got the copyright to Cybera, right? That must be worth a fortune."

She pushed her ring up and down just below the joint. A fortune? Not likely. Was it? She had to admit, she didn't know.

But the rights to Cybera wouldn't be one of the company's assets if they went bankrupt. She still had some cards in her hand. She wasn't sure why this hadn't occurred to her sooner—perhaps she'd been concentrating too much on her own misery.

"I never thought of it that way," Lindsay said slowly.

Joel grinned and gave a shrug that said, *easy enough*. "Hey, sometimes all you need to see your way out of a problem is a different perspective."

Which he certainly provided. As they continued up the gentle incline of Mt. Chihsing, they talked easily, learning about each other on the hike. They even lived in the same city, of all things. Their lifestyles, however, were completely different. She probably wasn't much older than he was, and she'd been running her own business with her husband for the last seven years. Joel was a graduate student in anthropology who'd only left college to travel the world with a backpack and a smile. For him, everything was temporary; for Lindsay, everything was permanent—only now, all her permanence was deserting her.

She didn't know how Joel could seem so secure and carefree living a life of such constant change. She didn't want to even *think* about all the change that was waiting for her when she got home. She twisted the ring on her finger and caught Joel looking at it and then away.

Lindsay slipped the ring off and put it in the pocket of her jeans. "That's another fun thing waiting for me when I get back," she said. "Divorce proceedings." They had reached the summit of Chihsing, and turned to enjoy the view of the Taipei basin. This far up, the air was clear, and the city stretched out before them, hugging the Tamshui River and climbing partly up the mountains on all sides.

"Oh," Joel said, his cheerfulness deserting him.

Now what had possessed her to reveal *that*? "I never thought Taipei could be so beautiful," Lindsay said to change the subject.

"Yeah, the view is great, isn't it?" Joel was obviously relieved.

It really was beautiful up here, away from the valleys of concrete filled with taxis and honking horns and exhaust fumes. A small spark of joy caught her by surprise, and she smiled.

From the summit, they hiked to the sulfur pits and the hot springs and the waterfalls. The green hills and the peace of the setting were a balm to Lindsay's soul, and she returned to her hotel at the end of the day feeling more rested and composed than she had at any time since Trevor had told her he wanted a divorce.

And Joel—Joel was a living lesson in how to be comfortable with change. She was grateful for his admiration, but she knew it wouldn't lead anywhere; they were just too different.

She picked her key up at the reception desk and took the elevator to the ninth floor. As she walked down the hall to her room, she noticed something on the floor in front of her door.

It was a long, blue peacock feather.

The peacock feather rested against her monitor in the NGTS office while Lindsay clicked on one of the links Google offered.

Kwan Yin (Chinese; Quan Yin, Guan Yin, Kuan Yin) "she who hears the cries of the world." Also known as Quan'Am (Vietnam), Kwan Um (Korea), Kwannon (Japan), and Kanin (Bali).

A guardian and patron of women, sailors, and those facing punishment, Kwan Yin is frequently invoked as the Goddess of Compassion. She traditionally appears as a beautiful Asian woman, holding pearls of illumination in one hand or a small vial or vase, representing growth. She is also associated with the dragon, the cosmic white horse, and the feathers of the peacock.

Lindsay sat back, stroking her own feather.

It wasn't everyone who got attacked by peacocks. And it wasn't everyone who had a goddess on her side. Why not? She didn't believe it, of course, not really, but if it made things easier for her, why not imagine a Bodhisattva was helping her?

She stood up, laid the feather on her desk, and headed for Frank Shen's office.

Frank greeted her with a smile, getting up from his desk and motioning her into one of the comfortable chairs next to the coffee table.

He sat down across from her. "What can I do for you, Lindsay?"

"After the presentation I gave last week, Angela told me that Cybera is probably our main selling point in a more extensive partnership with NGTS."

Frank nodded, looking at her thoughtfully.

"It occurred to me, however, that your company might also be gambling on Cleio going bankrupt, in which case you would be able to buy the copyright to the game outright if you move fast enough. Just in case there are any considerations along these lines, I wanted to let you know that Cleio does not own the copyright to Cybera. I do."

"Ah." He continued to look at her, waiting.

"Now, under certain conditions, I might be persuaded to transfer the copyright to Cleio—and of course any partners it might have."

Frank leaned forward. "What might those conditions be?"

Lindsay climbed the steps to the altar of Kwan Yin, the peacock feather sticking out of the bag draped over her shoulder, the soft hairs brushing the back of her upper arm as she moved. The goddess gazed down at her, her expression gentle.

"No need to look so innocent," Lindsay said when she reached the front of the altar. "I know better."

Kwan Yin disdained to answer.

"So tell me," she continued, not even feeling silly that she was talking to a statue, "was Joel just another incarnation of you, too? I read on the Internet that you were originally worshiped as male."

The goddess held her vase of water and remained silent. From the trees on the hill behind her, birdsong filled the air.

"It doesn't matter, you know. It's not like I expected an answer." Lindsay shrugged and opened her bag, taking out the thin wedding band.

"Mostly I just wanted to thank you," she said, and laid the ring on the altar at the feet of the statue. "If I were the type to believe in gods, you'd be my first choice."

The weather in Austin was pleasant by the time she got back two weeks later, the humidity of summer slowly being replaced by the drier heat of fall. Most of the kinks had been ironed out of the English version of White Magic, and the partnership contract with NGTS was all but signed. Lindsay spent the first week in Austin working out the details of her resignation from Cleio, including the payment she would receive for the rights to Cybera. Trevor and the others weren't happy, but the fact that NGTS had agreed to buy into the company kept them from being too vocal about it.

She was cleaning out her office desk, neatly packing her belongings in moving boxes, when the phone rang.

"Cleio Software, Lindsay Gurdin speaking. May I help you?" She wouldn't be saying that much longer, but any pain she felt at the thought had the sweetness of new challenges in it.

There was a short pause at the end of the line. "Lindsay?"

At first she couldn't answer. "Joel? But I thought . . ." No, she couldn't

tell him she thought he'd been a goddess in disguise. Or if not thought, at least suspected. "I thought you were in Japan."

"I ran out of money."

"That's too bad."

"I'm glad I got a hold of you. I might have something of yours."

"What do you mean?"

"The oddest thing happened before I left Taiwan. I was visiting this old Buddhist temple in Tamshui dedicated to Ma-tsu, goddess of the sea. You ever heard of her?"

"Uh, yeah."

"Anyway, while I was there, this Asian woman who I'd never met before came up and asked me if I knew you. How could she have known that?"

"Beats me. Maybe she saw us together at Yangmingshan."

"Yeah, yeah, that might be it." He sounded relieved. "So at the temple she gave me this ring she said she thought was yours. Did you lose a ring in Taipei?"

Lindsay stared at the bright blue feather lying on her desk. "Yes, I lost a ring."

Joel heaved a sigh of relief. "Man, am I ever glad. I really didn't want to take it, but she insisted on it."

"Well, thank you for bringing it along."

"Should we meet somewhere so I can give it to you?"

"How about the Dog and Duck?"

"That sounds good. I'm looking forward to it."

"Me too."

Lindsay hung up the phone, still staring at the peacock feather. What was it he'd said in the park? *Thrown together by a peacock*. No, they were much too different—and besides, it was only a beer at a downtown pub.

But she could feel a silly grin tugging up the corners of her mouth anyway. *Hot damn*. She picked up the feather and inspected it. Tiny flecks of silver and green and purple flashed in the deep blue. She thought of Ma-tsu's sparkling dark eyes and shook her head.

Maybe there was a goddess after all. ○

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IN THE ABYSS OF TIME

Stephen Baxter

Stephen Baxter's fourth *Destiny's Children* novel, *Resplendent*, will be out soon from Gollancz. It tells the wider story of the *Destiny* universe, and will include, among others, such Silver Ghost tales from *Asimov's* as "On the Orion Line" (October/November 2000) and "Ghost Wars" (January 2006). The author is currently at work on a new time-paradox series called *Time's Tapestry*. The first book, *Emperor*, should appear from Ace in January. Stephen certainly plunges us into time's breathtaking depths in his newest tale for *Asimov's*.

St. John Elstead's cosmological time machine was a hole in the ground. I was choppered in from L.A. We flew maybe sixty kilometers north, skimmed across the Mojave, and descended close to the town of Edwards. From the air, Elstead's facility was a ring of blocky white buildings that might have spanned a couple of kilometers, set out over the desert. The hub of the facility was a huddle of buildings at the rim of the circle toward the southwest, like a diamond on a wedding ring.

We landed on a helipad, an uncompromising square of black tarmac. I climbed down with my backpack. This was the Mojave, in July. I had flown straight out from a rainy London, and jet lag and furnace heat made me reel.

A gaggle of technicians in orange jumpsuits, some of them carrying lightweight cameras and sound gear, stood at the edge of the pad. A tall, spare figure came striding toward me, smiling. He wore a jumpsuit like the rest, with a nametag on his chest and some kind of mission patch on

his arm. His coiffure was expensive, his skin toned, and though I knew he was in his fifties he had the easy physical grace of a man with the time to play squash.

He grabbed my hand. "Ms. Oram. Susie?"

"Yes—"

"Glad you could make it. You know who I am."

What arrogance! But as *Time's* Man of the Year of the previous year, 2023, St. John Elstead, founder and life president of Cristal Industries, was unmistakable. I was tempted to mispronounce his name—"Saint John" rather than the correct "Sin-junn"—but that would have been petty.

He turned on his heel and marched back to his technicians. I hurried to follow, my pack heavy on my sweating back. Over his shoulder he asked me, "Do you know why you're here?"

"Because you're paying me half a million euros."

He laughed. "Fair enough. But you don't know anything else? And it doesn't bother you?"

I decided to be blunt. "I'm just back from covering the efforts of Christian peacekeepers to broker an armistice in the Iraqi civil war. Writing up some businessman's latest vanity project does not frighten me, no."

He glanced at me. "A bit of spirit. That's what I detected in your work for the *Guardian*." His accent was the strangulated Bostonian familiar from a hundred ads and a dozen high-profile self-publicizing stunts—ballooning, swimming with the sharks, a circumlunar jaunt on a rented Soyuz. "Full briefing later. But for now, two words: *cosmological exploration*." He grinned, but it meant nothing to me.

The technicians stood around a hole in the ground. It was maybe a meter across and covered by a heavy metal hatch, like a submarine's. As we walked up, two heavy-set techs turned the hatch's wheel and hauled it open. A shaft led into the ground, filled with a silvery light, and I felt an unaccountable thrill.

"Down we go," Elstead said to me.

"Now? Just like that?"

He shrugged. "We're ready to go."

"Go where?"

"We've just been waiting for you. There's nothing to be gained by delaying. And besides, it's air-conditioned down there. You first. Look, there are rungs inset into the wall of the shaft."

The shaft was generously wide, plenty of room for me and my pack, and maybe three meters deep. At the bottom I stood with Elstead and looked up at a circle of washed-out Mojave sky, and sweating, silhouetted faces. When the hatch closed over, it was like an eclipse of the sun.

Elstead watched me. "I hope you're not claustrophobic."

"It's just that things are moving a little rapidly."

"That's how I like it. This way."

We were off again. He led me through a door, a big oval metal affair opened by spinning a wheel, then along another short passageway, brightly lit. The air was fresh and cool, but it smelled faintly metallic; obviously we were in a sealed system. It was like a nuclear bunker. And there were oddities: Velcro pads on the walls, bright color schemes with

floors and ceilings clearly distinguished from walls, even doors that looked as if they had been fitted sideways.

We reached a small cabin, and Elstead gave me some privacy for a few minutes. It wasn't much more than a pod-hotel room in Tokyo, but it had a softscreen, its own tiny bathroom facilities, and even a little coffee machine. The bunk had seatbelt-like straps over it, oddly.

A single jumpsuit hung on a peg. It had a nametag stitched onto it—ORAM—and a mission patch, like an astronaut's, which showed a kind of funnel shape like a cartoon black hole, and a slogan: SPACETIME BATHYSCAPHE I. How cheesy, I thought. I did wonder, though, what kind of bathyscaphe could be buried in the Mojave.

I used the facilities quickly, trying to wash off the grit of a transatlantic flight and to wake myself up. The jumpsuit was a perfect fit. I left my London clothes in a locker.

Elstead had waited for me outside. "The suit is OK? It's smart fabric, self-cleaning, temperature control."

It was cool and snug, and moved with me as I walked. "I want one."

He laughed. "Keep it."

Through another hatch in the floor we descended to a lower level, and came to a larger chamber, which Elstead called the bridge. It was a roughly cylindrical space, with its curving walls, floor, and even the ceiling coated with softscreens. Right now these were full of readouts, graphical and digital. Three couches, like heavy-built airline seats with harnesses, were suspended in the center of the room. You reached them by crossing a catwalk of white-painted metal. They had trays laden with more softscreens that you could pull into your lap.

The central couch was already occupied, by a thin, intent-looking man of around forty. He was busy, peering at the wall displays, working at his lap tray. When we walked in, he started to get up, but Elstead waved him back. "That's Teutonic manners for you, but the three of us are going to be working together for the next few days, and I don't think we need stand on ceremony."

The man shook my hand. "My name is Walter Junge." *Vall-tair*. His accent was clipped, precise; I thought he was Prussian.

Elstead clapped him on the shoulder. "Walter is my evil genius—my Igor. All this, the Bathyscaphe and the facility that sustains it, is his design."

Junge nodded. "But your vision, Elstead."

Elstead laughed. "And my money. Not the first time American money and German know-how have combined to make history, eh, Susie? So our motley crew is assembled. Sit down, Susie—your seat is the right-hand one. Strap in tight."

The buckles were straightforward. As I strapped in, Junge continued to work, and a low hum filled our spherical chamber. I sensed huge energies gathering. The proceedings had the atmosphere of a space launch; I had a fantasy of this whole facility bursting out of the ground like a Minuteman missile from its silo.

The preparations for this event must have been going on for hours; it was a showman's touch to have me landed and thrown down here at the

crucial moment. It was all as corny as hell, and I still didn't know what was happening. But again, I couldn't help feeling thrilled.

Elstead smiled at me. "Susie, a favor. Do you have a pendant? A locket, maybe. . . ."

I had a small crucifix on a gold chain, a gift from my mother when I was five; I'd worn it ever since.

"Would you mind taking it off, and hanging it from your monitor tray?"

I shrugged and complied. The little trinket dangled, glittering in LED light. "I still don't have the faintest idea what we're all doing here."

"You'll find out in five minutes," Elstead said.

"Actually a little more than three," Junge said. "The five-minute count started when you closed the door to the bridge."

"Three, then. I did give you a clue, Susie—"

"*Cosmological exploration*. That means nothing to me." I remembered old Discovery Channel shows about giant orbital telescopes peering into space. Cosmology was a matter of observing; its subject was the universe, its theories concerned the ancient past and deep future. How could you explore it?

But I had picked up other clues. "We're in the Mojave. Close to Edwards Air Force Base? A good place to be if you want isolation, but with access to technicians from L.A., and maybe help from the Air Force with heavy lifting." I thought about that circle of blockhouses, spread over kilometers. "Have you built a particle accelerator out here, Mr. Elstead?"

"Just Elstead, please. Good guess, Susie. But the accelerator is only a means to an end."

"And I don't see why you would put a bathyscaphe in the middle of the desert."

"One minute," Junge said.

Elstead said, "So why do you think I asked *you* here?"

I shrugged. "With respect, your ego is everything. I'm here as, what, an unbiased witness? My job will be to write up this chapter in your hagiography."

He laughed, evidently not offended. "I couldn't have put it better. And, aside from the money, what made you come?"

"If you succeed, fine. If you don't, this monumental folly will make an even better story."

"Fair enough. Let's hope we both get what we want."

"Fifteen seconds," Junge said. "Everything is nominal. Ten. Nine . . ."

"I don't think we need a count," Elstead said.

So we sat in silence. Elstead seemed relaxed, unbearably confident. Junge was focused on his machinery, the born technician. Only I grew tense.

There was a kind of jolt. I felt as if I were falling; my chest pushed up against my harness. Startled, I asked, "What is this, some kind of elevator?"

"Look at your pendant," Elstead said. "Old trick I learned from the Soyuz cosmonauts. . . ."

The crucifix was floating, the chain twisted.

"We're in free fall," Elstead said.

"Why? How? We're buried in the dirt."

"Not any more," Junge said. "Elstead, the external monitors are working."

"Cameras on the outer hull," Elstead explained to me. "Walter, let's see out."

Junge tapped a control. The wall displays cleared of their read-outs, to show what was now beyond the hull of the Bathyscaphe.

Stars.

"We have fallen away from the Earth," Elstead said, his grin demoniacal in the starlight. "And, far more importantly, Susie, we have fallen into time. . . ."

I screamed. Then I threw up.

Elstead and Junge had both been prepared. Elstead had his boy-astronaut experience on the Soyuz, of course, and he had sent poor Junge for flights on a Vomit Comet. For me, spacesickness pills stopped the hurling, but I was fragile for the first hours of our journey—for such I now, tentatively, accepted it to be, though I still didn't understand where we were going or how we were getting there.

I spent much of that time away from the bridge, exploring the Bathyscaphe. Some kind of displacement activity, no doubt, focusing on the fixtures and fittings rather than what lay beyond the walls. But I did need to learn to get around in free fall.

The core of the Bathyscaphe was a cylinder ten meters tall, maybe five wide. It was divided into three levels. The middle deck was the bridge, centered on our three couches. The upper deck, through which Elstead had led me from the surface, was a living space—cabins, a galley, washrooms. The lower deck was sealed off; it contained computer banks, a closed-system life support, and our power supply, a small nuclear plant. The decks were connected by ladders that were just as easy to navigate without weight. Elstead had borrowed Space Station design elements—the Velcro pads on the walls to which you could stick pens or handhelds, the strong color scheme to give you a sense of orientation.

Our cylindrical hab was contained inside an outer hull, a sphere of hardened steel. The space between the hab and the hull was filled with—well, something strange.

I did try to sleep that night, in my bunk (now I found out what the straps were for). I kept dreaming I was falling, for so I was. I had a fantasy that we were plummeting down some vast shaft into the center of the Earth.

But Junge showed me some of the raw feed from the hull cameras. If he swiveled the viewpoint I could see the curving hull itself, adorned with the Stars and Stripes, and the logos of Elstead's companies, and bits of Mojave dirt clinging to the metal. And whenever the cameras tipped away from the ship, they filled up with stars.

Twenty hours after the "launch," Elstead summoned me by intercom. "We're approaching our first milestone. You will want to see this."

Reluctant, fearful, I hauled my way to the bridge. The three couches on

their spindly catwalk were suspended in a star field. I pulled myself over the catwalk and strapped myself into my seat. There was no sense of motion, but it made me feel more secure.

It seemed to me that the stars swam, constellations morphing like dreams. And behind the sprinkling of stars was something new, a cloudy veil; I thought I could make out colors, gold and brown. That too shifted, like a cloud seen through raindrops. I had no real understanding of what I saw.

Junge was locked into his machinery, but he was actually more empathetic than Elstead, who wanted only to dazzle and impress me, and he tried to explain. "Everything you see is processed. For one thing the light that falls on the ship's hull is blueshifted—that is, Doppler-shifted. We have to render the hard rain of photons into something palatable to the eye."

I knew from speed-trap technology that Doppler shift had something to do with relative velocities. "Blueshifted by what? Are we moving so rapidly?"

"No," said Elstead smoothly. "The blueshift comes from our falling through time. And our, umm, velocity is increasing. Maybe you can tell that from the way the nearby stars are swimming around the sky. Sol is one of a crowd of stars swarming around the giant black hole at the heart of the galaxy. But beyond you can see another galaxy altogether—Andromeda. Two million light years away, the most distant object you can see with the naked eye. It's just a faint smudge. In our day."

The spangled cloud I saw was no faint smudge.

Junge pointed to one star, the brightest. "There is our sun. We haven't come so far, really." Again he was trying to orient me, to comfort me. But I thought the sun's light was red-tinged.

Elstead called, "I guess it's time you started asking your questions, Susie. The two most basic must be—*how* are we journeying through time, and *why*?"

"Or maybe, *how* are you pulling off this monumental hoax?"

Elstead just laughed. Nothing I said ever seemed to offend him. "Where do you want to start?"

"All right. How?"

Elstead nodded at Junge. "That's the engineer's department."

Junge said, "The details are somewhat intricate. The principle is simple. Buoyancy . . ."

We dived into particle physics.

The universe is made up of several kinds of stuff. The visible matter, the "baryonic" of which you and I are composed, is a mere trace, far outweighed by "dark matter," mysterious stuff so evanescent it passes through the light stuff as if it weren't there, and interacts with it only through gravity. It's so wispy, in fact, that not a single particle of it was detected until hypersensitive facilities came online in the late 2010s. But both kinds of matter are overwhelmed by a third sort of stuff called "dark energy."

"Dark energy is a kind of antigravity field," Elstead said. "It is driving the expansion of the universe. And we know, since 1990s observations of distant supernovae, that about six billion years ago the expansion, hav-

ing slowed since the Big Bang, began to accelerate. Hence we know the dark energy field is becoming dominant."

Junge said, "At any moment any volume in the universe—like this ship, Susie, or your own body—contains a mixture of these substances, dark and light matter, dark energy. But as time goes on, the dark energy component increases. And what we have done, with the facility under the Mojave—"

"The particle accelerator."

"—is to find a way to increase the strength of the dark energy field in a specified volume. Specifically, in the Bathyscaphe's interhull space."

"How?" I asked, suspicious. "I thought dark energy is still little understood."

Elstead said, "You don't have to understand something to exploit it. My Cristal Industries cellphones work almost entirely on quantum mechanical principles, and nobody understands *that* after a century of trying. But as to the details—commercial confidentiality. Sorry, Susie."

"And when you've flooded the interhull space with dark energy?"

"Buoyancy," Junge said. "Susie, our Bathyscaphe has been given the fundamental composition of an object from the far future—a time when dark energy will be by far the dominant component of the cosmos. And so the Bathyscaphe, umm, comes untethered in space and time. It's exactly as a submarine floods its buoyancy tanks to dive. The Bathyscaphe is sinking toward its natural place in spacetime—and that place is the very deep future."

"But," I said, half believing, half alarmed, "I suppose we do have a way to blow the tanks."

"Oh, yes," Elstead said. He showed me panic buttons, big red slabs mounted on his and Junge's consoles (though not mine). Pressing these would lift us home immediately. "I have no ambition to die in a spacetime hole."

"I suppose you have tested all this out?"

"With unmanned drones," Junge said. "This is the first voyage of the Bathyscaphe itself."

"Call it a test flight," Elstead said. "Thrilling, isn't it?"

Junge was peering at the wall monitors. "The merger is due."

Elstead checked his lap display. "Right on cue. Susie, perhaps you know that our galaxy and the Andromeda spiral are the two big beasts of our local group of galaxies. And they've been heading toward each other since they were formed. Some day in the far future they will collide—but we are *in* the far future, aren't we? Enjoy the show. . . ."

A band of light cut across the cloudy disc that spanned the sky. I saw sparks: huge stars, forming, blazing and dying. Millions of years passed with each heartbeat.

"We're sitting in the disc of one galaxy," Elstead murmured, "as it intersects the disc of another. The loose gas in both galaxies is being compressed to form new stars—it's the greatest star-birthing event in either galaxy's history. Tough on any life forms around, however."

The stars around us swam, agitated, like bees pitched out of a hive. Only Sol burned firm, reddish, immovable; perhaps we orbited it. The delicate structure of Andromeda, only just discernible as a spiral, began to

break up. What looked like gas fountained outward, away from me, multi-colored—but that “gas,” brilliantly lit, was made up of stars, clouds and streamers of stars. But the streamers quickly dispersed.

“Show’s already over,” Elstead said. “For a while the collision has created a brilliant, elaborate hybrid. But it is quickly settling down into a huge composite galaxy, a plain elliptical, with the delicate spiral structures of the originals broken up. And most of the star-making gases used up too. An expensive firework display.”

It could have been a simulation. I had sat through much more elaborate VR adventures than this. But still . . . “Elstead, when is this collision due to happen?”

“Round numbers?”

“Just tell me.”

“Three billion years after our time.”

I looked for the sun, the one constant in the firmament. But its color had changed, becoming fiery, and I thought I saw a disc. “Is something wrong with the sun?”

“Walter, I thought the red giant phase wasn’t due until six billion years?”

Junge checked figures, and shrugged. “The astrophysicists could only give us predictions. Maybe the galactic collision disrupted solar physics, somehow.”

Elstead snorted. “Bullshit. Make sure you record this, Junge. I’ll enjoy showing this to old MacNerny at Cornell and make that pompous pedant eat his words. . . .”

The sun ballooned, quite suddenly, to become a crimson wall that covered half the sky; black forms like monstrous sunspots crawled across it. Then it popped, flinging out material. For a second the space around us was laced by streamers of glowing gas, green and gold and blue, lit up by the solar remnant. But the nebula dispersed in an eyeblink.

“So that’s that,” Elstead said, matter of fact.

I asked, “What about Earth?”

“If it wasn’t swallowed in the red giant, by now it will be a ball of hardened slag under a thin shell of frozen nitrogen. What do you think of that, Susie? London, New York—and Bethlehem and Mecca—all gone. But our scopes don’t have the resolving power to find it.”

“Three billion years,” I said. “How much further will we go? Ten billion? A hundred?”

“Oh, further than that.” Elstead smiled. I was coming to hate his mind games.

I noticed my gold crucifix still floating in the air. I grabbed it and hung it around my neck. Then I began to unbuckle. “I think I’ll go to my cabin—”

Junge touched my arm. “No. Wait. Brace.”

The ship shuddered, and a cold light flickered behind the stars.

“Gravity waves,” Junge muttered. “The merging of the big black holes from the centers of the two colliding galaxies. Brace for aftershock . . .”

Again the Bathyscaphe rocked and bucked, its hull metal groaning, as we fell deeper into time.

* * *

I was on the bridge in the middle of the next day, our third, when we passed the next milestone.

Elstead had served up lunch, in ceramic trays piping-hot from the microwave oven. We ate at our stations with the trays clipped to our laps. My choice was a pasta bake. The galley mostly served up "astronaut food," as I thought of it, dried food like biscuits, or dinners bound to the plate by glue-like gravies and sauces. I'm told the Russians do it better.

Around us the stars of our new elliptical galaxy swarmed nameless, slowly fading as the eons ticked away.

"Depth, twenty-five billion years," Junge called. "The Big Crunch. Here we go. . . ."

I was alarmed enough to stop eating. "The Big Crunch—a reverse of the Big Bang, right?"

"Yes," said Elstead.

"When all matter, all space and time, will be crushed out of existence."

"Yes."

"Including us?"

"It's a possibility—"

Junge held up a hand.

I stopped breathing. I clutched at my couch's armrests, as if that was going to help.

Nothing happened. The stars continued to shine, fading gently.

"We're through it," Junge said. "Next destination the Big Rip, in another fifteen billion years." He glanced at his timers. "Maybe an hour." He turned back to his food.

"So no Big Crunch," I said.

"No Big Crunch," Elstead said. "And, please note, resident journalist, we have made our first significant cosmological discovery. Susie, I think you need to ask me the second of your big questions."

I nodded. "Why, then? Why make this journey?"

"Simple. To learn the answer to the most fundamental question of all: what is to become of us, in the end?" He began to lecture me, and, through me, posterity. "Susie, when I was a kid the universe looked pretty straightforward. The dominant force was gravity: everybody agreed on that. We knew the universe had come barrelling out of the Big Bang, and gravity controlled the future. If the mass density of the universe was too high, if gravity was too strong, then the universe would reach some maximum radius and start to fall back on itself. Otherwise the universe would expand forever. Big Crunch, or endless dissipation. But that simple picture fell apart when those anomalous distant-supernova results turned up in the 1990s. And now the answer to that epochal question about the universe's ultimate fate depends on the properties of dark energy, which are unknown.

"In the most extreme scenario, suppose the density of the dark energy is decreasing with time. Suppose it even goes negative. If that happens it will become *attractive*, like gravity. The universal expansion will slow quickly, and then reverse. A Big Crunch, soon. But we have already descended through the most likely epoch for a dark energy crunch. In the process we've proven something about the properties of the dark energy

too, do you see? This is an exploration not just of cosmology but of fundamental physics."

I glanced uneasily at Junge, who quietly watched his timers. "And the Big Rip?"

This was predicated on a different theoretical model for dark energy, and was still more spectacular. Perhaps the dark energy could become *stronger* with time and the expansion of space—and as it grew stronger it would fuel further expansion—and a positive feedback effect could cut in. The final expansion would be sudden and catastrophic.

"Five minutes to the Rip," Junge said.

Again I gripped my couch.

"Now you know my objective," Elstead said. "To observe *directly* our cosmological future—to see which of many possible outcomes we must endure—and thereby, incidentally, to confirm various models of fundamental physics by direct inspection of their far-future consequences. What a goal it is! You know, I made an awful lot of money through doing awfully little. A slightly different kind of implanted cellphone, just good enough to beat out its competitors: I made billions, but it's an achievement that will be forgotten in a century. *This*, though, will live in the imagination forever. I know people call me grandiose. But I've had my kids, made them all implausibly rich. What else should I spend my money on. . . ?"

And as Elstead talked about himself we lived through the five-minute barrier, and survived a sixth minute, and a seventh. No Big Rip; more dark energy models eliminated.

I went to my cabin, and threw up all I had eaten.

The fourth day of our journey was dull by comparison. We sat on the bridge, chewing on half-cooked TV dinners, watching the show.

We were sinking into a deep future of possible cosmic outcomes. We now seemed to be faced by a set of models of the dark energy in which its density remained constant, neither growing nor falling. According to Elstead, all we could do was wait; even at the gathering rate of our descent, there were many slow processes to be worked out before the cosmos came to its next decision point.

Thus we reached a time, a hundred billion years deep, when the cosmic expansion carried other galaxies "beyond our cosmological horizon," as Junge put it, their light no longer able to reach us. Our elliptical galaxy was left alone, hanging in space like a single candle in a cathedral.

It was an increasingly shabby galaxy at that. The galaxies' merger had wasted much of the material needed to make new stars. In time, all that was left was a population of small, miserly stars, eking out their paltry stores of hydrogen. Even they were dying, of course.

I wondered about life. "Civilizations like our own could be rising and falling all around us and we'd never see them." It was true; we rushed by too quickly.

Elstead picked on that. "If there is life out there, do you imagine there could still be people? Even if humanity survives, could our descendants still be anything like us?" He glanced at my crucifix, which floated in the air before my throat. "Are you a practicing Christian, Susie?"

"Sort of." I was brought up Catholic; I attended Mass with my parents. I welcomed the social glue of the Church, and I liked to think I had an open mind about the rest. "You?"

He snorted. "No, but my parents were, as you can tell from my first name. Consider this. In our day Christianity was only, *only*, a couple of thousands of years old. Some gods have been around longer—but many more have been forgotten. We have no idea to what gods Stonehenge was dedicated, for example. Human culture seems incapable of keeping its gods alive for more than a few millennia.

"But suppose humanity survives a million years—or ten million. Most mammalian species go extinct on such timescales. How will time change mankind? Is it even conceivable that the memory of any god could survive such a stupendous interval? Because that's what you have to believe, you see, if you follow Christ, or Allah, a One True God."

I thought about that. "Either possibility—the abandonment of Christianity, or its enduring for a million years—is hard to get my head around."

"Yes, it is. But go even further. What happens if humanity goes extinct? Could the last man baptize an octopoid creature from Alpha Centauri? Can the flame be kept alive in alien heads? And what happens if intelligence fails altogether? Is there room for Christ in a universe altogether without mind, even without life? Because that is what you *must* believe. Or if you can't believe it, then what is the purpose of your faith. . . ?"

He went on in this hectoring way for some time. Junge shot me sympathetic glances, but I wasn't troubled; my residual faith isn't deep enough for that.

Anyhow I understood that Elstead was just picking on me because he was bored by this long day—bored as he waited for the end of the universe.

On the fifth day the stars went out.

For a while the sky was full of their remains. There were black holes and neutron stars, the remnants of giants, while stars like our sun became white dwarfs, slowly fading to black. Occasionally a flare would light up the dark, as an unlucky dead star fell into a black hole, or dwarfs collided and ignited. But these were rare, chance events. Junge said that in the end our sun would collapse to a single, immense crystal of carbon, a diamond cool enough to touch. It was a wonderful image, but we weren't able to see it.

On the sixth day we watched the galaxy disintegrate. Chance encounters threw one star after another out of the galaxy's gravity well, a relentless evaporation that turned our black sky even blacker. Junge said that the galaxy was dispersed utterly after some hundred billion *billion* years.

That long day I spent some time trying to make such numbers meaningful to myself. Such was the expansion of scales that as a single year was to the lifetime of the universe in my day, so that entire epoch from Big Bang to humans was to this new age. But any such comparisons, fleetingly grasped, were soon overwhelmed by our continued plummeting into ever more outlandish depths of time.

And still the expansion continued, still the universe's dreary physical

processes unfolded. There was no sound in the Bathyscaphe but our own breathing and the whirl of the air scrubbers.

On the seventh day, the ghosts of the last stars, mere infra-red traces, faded out one by one. The cosmic expansion, having long ago separated galaxies from each other, now plunged its hands deep into stellar neighbourhoods. There came a point when the remnant of the sun was left isolated within its cosmological horizon: the sun, alone in its own universe.

And as the day wore on, even the diamond sun began to break up.

Junge had a set of particle detectors mounted on the hull of the Bathyscaphe. He passed their signals through a speaker, and we heard soft pings from the cosmic dark.

"Protons," Elstead breathed. "The decay of protons into their constituent quarks—on the very longest of terms, even solid matter is unstable. Another theory vindicated! They ought to give me the Nobel Prize for this."

"So what happens now?"

"That all depends, Susie. On what we find tomorrow."

None of us went to bed that night. We brought blankets from the cabins and sat in our couches, side by side, the only light in the universe shining on our faces. Nobody slept, I don't think. Yet nobody had the nerve to suggest that we shut off the softscreens and exclude that terrible, unending night. I watched the clock. There wasn't anything else to do.

At last, the eighth day began.

At the time we understood nothing of what happened to us. Later we reconstructed it as best we could.

We had clung to each other because we thought we were alone in the universe. We were wrong. Humans had never been alone.

From a hundred centers, life and mind spread across the face of the galaxy. Gaudy empires sprawled; hideous wars were fought; glittering civilizations rose and fell. Yet what survived each fire was stronger than what had gone before.

Humanity, born early, did not survive to participate in this adventure. But the wreckage of Earth was discovered; humans were remembered.

Then came the collision with Andromeda, a ship of stars carrying its own freight of history and civilization. The vast disruption inflicted deep wounds on two galactic cultures—wounds made worse by the wars of the dark days that followed.

Yet out of these conflicts came a new mixing. Minds rose up from the swarming stars like birds from a shaken tree, and then flocked into a culture stronger and more brilliant than those that had preceded it—but a more sober one.

In the long ages that followed, civilization turned from conquest to consolidation, from acquisition to preservation. Vast libraries were constructed, and knowledge was guarded fiercely.

But the universe wound down.

As the galaxy evaporated, its unified culture disintegrated into fiefdoms. Worse, as the stars receded from each other, the universe shed its complexity, and it became impossible for the ancient catalogues to be maintained. Information was lost, whole histories deleted.

Nobody even noticed when the last traces of humanity were expunged.

The last cultures pooled resources and eventually identities, so that, within the cosmological horizon of the sun, in the end there was only a single consciousness, a single point of awareness, hoarding a meager store of memory.

And still the universe congealed. Elstead's final cosmological discovery was that there could be no relief from the relentless expansion. The proton decay reduced all matter to a cloud of photons, electrons, positrons, and neutrinos—and at last the cosmic expansion would draw apart even these remnants. In the end, each *particle* would be alone within its own cosmological horizon. And at that point, when no complexity of any kind was possible, consciousness would cease at last.

Think of it! There you lie, the last solar mind, trapped in spacetime like a human immersed in thickening ice. Dimly you remember what you once were, how you cupped stars in your hands. Now you can barely move. And the constant expansion of the universe bit by bit shreds your memories, your very identity, a process that can only end in utter oblivion. You have nothing left but resentment and bitterness, and envy for those who went before you.

And yet there is, just occasionally, a moment of relief.

In Earth's oceans, life teemed close to the surface, where green plankton grew thick on sunlight, a minuscule forest that underpinned food chains. But as one fish ate another, scraps or droppings would fall into the deeper dark beneath. Here swam strange fish of the deep, with huge mouths and enlarged eyes and viper-like teeth. There were whole pallid ecologies down here, surviving on the half-digested morsels that rained down from the shell of sunlit richness above.

So it was in the ocean of time. In the bright, energy-rich ages of the past, time travel had been invented and reinvented many times. And wary travelers would venture into the far future, beyond the death of the suns. . . .

You are trapped in the cold and the dark. But, just occasionally, a morsel from the bright warm past falls down the ages to you, bringing with it a freight of mass and energy and, above all, complexity. Just for a while, you can live again—or at least, allow yourself the luxury of completing a thought.

The Bathyscaphe, this unwary time machine, is like a fresh strawberry in the mouth of a starving man. You bite. And yet the taste is bitter. . . .

The Bathyscape rolled and shuddered. The walls lit up with red alert signals. Junge and Elstead were shouting at each other. It was far worse than the gravity-wave wash of the galactic collision.

But it wasn't the condition of the ship that concerned me, but the state of my own head.

I could *feel* it in me, another awareness, like a hand rummaging inside my skull. It fed on my memories, my personality, my life—it tried to consume all I had. And at the same time I sensed *it*, a huge intelligence towering over me, a roomy mind like an abandoned museum, and as desolate. I sensed envy. I sensed pity. I sensed *regret*. I wept, for myself, and for it.

And then it backed away. But my head was still cut open, my mind cold and exposed to the air.

I saw Junge's fist slam down on his panic button. Then I blacked out.

We sat in blankets under an intense Mojave sun. After the Cristal Industries medics had pulled us from the half-wrecked Bathyscaphe they wanted to move us into a blockhouse hospital, but none of us wanted to leave the light, the warmth. The medics and techs fussed around us, but it was as if only the three of us sat there, still alone in the universe.

Except we hadn't been alone.

All through the eight-day ascent back to the present we had been trying to piece together what had happened, trying to assemble our fragmentary impressions into a coherent whole. We were still arguing.

"It could have destroyed us," Elstead said. "The time shark. But it didn't. Why not?"

"Because it pitied us," I said. "That's all. It consumes time machines. But ours was early—as primitive as a hot-air balloon, perhaps—maybe even the first of all to get so far. It saw something in us it has lost in itself. Potential. Hope, even. It couldn't destroy us, any more than a bitter old man could kill a newborn baby."

"That's quite something," Elstead murmured. "To be the first."

"But *it is us*," Junge said. "It is the confluence of all the minds in two galaxies—or a fragment of that confluence anyhow."

"Not us," I said flatly. "Couldn't you feel it? There was nothing of the human in it, nothing left of us."

We had been arguing about this all the way home. For all he had goaded me about it, Elstead just hadn't wanted to believe humanity had had an end. "Maybe that's so, maybe not." He was as beat-looking as any of us. But, under his blanket, he rubbed his hands. "What we have to do now is make sure it doesn't turn out like that."

Junge and I peered at him. I asked, "What are you talking about?"

"We brought back a hell of a lot of data. Maybe we can figure out what went wrong for humanity. And then make sure it doesn't happen."

I said, "But even if you achieve that—what about the ultimate end? When the expansion scatters the last particles, all complexity is lost—"

"Does it have to turn out that way?" And he began to talk of other theories of physics. The dark energy field could have decreased in strength, just enough to slow the expansion. Or an even more eerie force called quintessence could stop the expansion when the last fundamental particles were still in contact with each other—and life, and consciousness, could continue, though at a terribly slow rate. "But the story wouldn't end," he said. "It wouldn't end."

"Elstead—" After all we had been through I wanted to be gentle. "The universe isn't like that. Cosmology doesn't accord with that model. We saw it for ourselves."

He wasn't daunted. "Then we have to find a way to fix it so it *does* accord. Or else ship out to another universe more to our liking. We've plenty of time to figure out the details. It's always been my belief that however the future works out, Big Crunch or Rip or endless expansion, there

has to be a way to preserve information through the terminal catastrophe—there has to be a way for life to survive. Anyhow, that's my plan." He looked at us, his eyes huge in his gaunt face. "Are you with me?"

All this was two years ago.

I didn't go back to England. I can no longer bear the dark and the cold—or the ocean. I took a house on a mountaintop in Colorado, a place bathed in light where I could hardly be further from the sea. I'm close enough to the summit that I can walk around it, and, every morning, I do.

I wrote up our story. I earned my euros.

I've found a partner. We're planning kids. That way I can postpone the death of the universe, just a little, I guess. I've kept in touch with Walter Junge; I hope his kids will get on with ours.

I've started attending Mass again. I don't quite know what I'm feeling when I listen to the ancient lessons. But Elstead was surely right that the monumental existence of deep time, and the erasure of all things, is the ultimate challenge to any faith. I suspect that in a few million years we'll be smart enough to figure it out, and I'm content to wait.

As everybody knows, St. John Elstead built a new vessel—Spacetime Bathyscaphe II—bigger and more capable than the first, and stocked it with people of a like mind to himself. I turned down the invitation to join him, but I did send him my crucifix pendant.

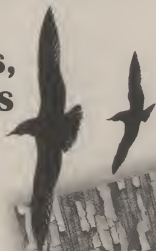
Elstead descended once more into the abyss of time, to challenge the destiny he found so unsatisfactory. He has yet to return. ○

In Wicked Hollows, on Darkling Plains

In the distance: black birds fly swiftly
skimming whitecaps in warm dusk
hurrying to roost.

I sip Kona on my wooden dock,
the wife inside, a good book at hand.
My hand no longer trembles, see?
Nothing can touch me here.

Which is how it will begin, but brace yourself,
the Horrorshow is imminent
madness in the news, next door, within,
boring into your crumbling life;
a weevil in the boll, I'll eat your heart away.



I'll seal up my rooms
with duct tape and plastic,
forsake the Bay,
that will keep out my ghosts,
my demons, and anything else
that tries to diminish me

Duct tape is good, but what about the floor?
I'll diffuse like radon through the cracks
in your sub-basement, locked, forgotten, vulnerable.
Like the moon, I will rise,
Flood your bombshelter brain till you can
cogitate no more and the tide, remember,
is unstoppable.

I'll read some King, Stoker, or Poe
because I know I am, as ever,
sole, complete, a unitary thing.
Your antics tell me what I always knew:
You are a broken toy my glance will sever
from reality:
you'll find the abyss welcoming, I trust.

More than you ever wanted to know
awaits you
In wicked hollows of the soul,
on darkling plains.
Flames will eat your walls,
peel the paint, blacken your wallpaper,
fill your cerebrum with foul smoke,
arouse the reptile in your cerebellum.

The conflagration will not sear me,
petals licking my asbestos spirit,
ambushing the convoy of my emotions,
and tearing at the throat of my thoughts
for naught: my armor's not susceptible.

You don't look well, you're like that corpse
of an old hotel, façade almost intact
but just a shell and inside fear disports
with pain, oh hell, your inner secrets sacked
your tree I'll fell and you will have no need
for books: you are indeed complete,
as I begin to feed.

—Kendall Evans and David C. Kopaska-Merkel

CRUNCHERS, INC.

Kristine Kathryn Rusch

This past spring was a fruitful time for Kristine Kathryn Rusch. In addition to seeing her well-received fantasy novelette, "Except the Music," in our April/May issue, she had the lead story in the March/April *Ellery Queen Mystery Magazine* and the cover story in the April *Alfred Hitchcock Mystery Magazine*. In her latest tale, she returns to science fiction to investigate life's balance sheets.

The scream from the middle office was loud and long.

"Damn," said Edith. "We've just lost another one."

Sure enough, Reginald Waterston burst out of the office, slamming the door against the wall—the windowed one, with the expensive glass that formed its own shutters.

He stopped at Edith's desk—they all stopped at her desk, for reasons she never quite fathomed—and said, "My grandfather gave me a horse!"

Edith resisted the urge to roll her eyes. She folded her hands on top of the file that she hadn't been studying, and leaned forward. The computer built into her desktop beeped, letting her know that, on its screen, it already had Reginald's personnel file, his suggested severance pay, and his recommendation letter.

"A real horse?" she said, pretending interest in Reginald Waterson's revelation.

"A plastic horse. From 1942. It had no chips in the paint at all." Reginald Waterston was forty-two himself, balding, with a tummy that needed a bit of tuck. His suit fit loosely—something Edith would have told him to change if she had been his company advisor—and he needed to trim his fingernails.

Employees five cubicles over slid their chairs toward the aisle. People were leaning around the ancient gray formations, so that all she could see were eyes.

Rows and rows of eyes.

It was different every time, with every single Actuarial Engineer. And everyone except Edith thought these outbursts were interesting.

Edith resisted the urge to sigh. She needed Reginald to get the point, and if she followed his inane line of reasoning, she would be listening to the poor man all day.

"This horse is important because—?"

"It's the only thing I ever got from him." Reginald had to mean the grandfather, not the horse.

Edith nodded.

"I was five, maybe littler. He told me to take care of it."

"Which I'm sure you did." The computer beeped again. Edith wished she could take that insistent tone with people. Maybe that was why they all came to her in the end. Because she was unfailingly polite.

"I did!" Reginald said with something like surprise. "And because of that horse, I went to a Wild West vacation in Arizona when I was twenty-five. I met my wife, we had my daughter, and I wouldn't be standing here."

"Resigning," Edith said.

That stopped him. "Quitting," he said after a moment. As if he were actually reflecting.

None of them had ever reflected before.

"How will you pay for your home? Your wife's—" she paused, looked down, saw nothing on the wife except that she had some outstanding student loans, and took a wild stab at it. "—continuing education? Your daughter's first four-year college? Hmmm?"

"We have savings," he said, sounding less and less certain of himself.

"And what happens when those savings run out?" she asked.

He stared at her for a long moment. Then those blood-shot eyes of his went slightly wild and he yelled, "I can't stay here! My grandfather gave me a horse!"

"I know," Edith said, hitting the image of the check on her desk-screen, then hitting print so that Reginald could have a hardcopy recommendation letter in addition to the e-mail version. "Believe me, I know."

Reginald left fifteen minutes later, stopping to tell anyone who made eye contact with him about his grandfather, the plastic horse, and the small gestures that could turn into major events.

Damn EISH, anyway. They'd found a way to get to him.

They always found a way in.

Edith summoned Conrad Meisner, telling him to meet her in five minutes in what had been Reginald's office. She felt unfairly burdened.

Any senior management official who got confronted with a terminating employee had to handle all problems caused by that employee.

Which meant that Edith had more than her share of terminal offenses. She'd actually dug through the hiring records to see if anyone had instructed quitters to come to Edith, but so far she had found nothing.

She would have to look again.

Then she heaved a sigh and got up, heading toward Reginald's office. She had put on weight again, so moving wasn't as easy as it had been. She had eight months before she was eligible for her third reduction surgery, so she'd either have to lay off the Cheetos before bed or take a six-week cure.

The last time she took the six-week cure, she went down to her official,

government-recommended weight for two extra months, then gained every pound back plus the friend that pound had probably been shacking up with. She could do the old-fashioned starvation/exercise thing, but she wasn't an exercise kinda girl even though she knew in fifteen years, she'd have to be at regulation weight or it would count against her. She already had two black marks—mid-level management position and no children—and she really couldn't afford another.

She pressed her palm against the doorknob to get in. The office had reset itself when Reginald took his walking papers. The door unlocked, then eased open, as if it were afraid to reveal the office's interior.

The interior window had stayed shuttered, and so had the exterior window. The office itself was dark. As she crossed the threshold, light rose slowly—*designed to replicate the moment of sunrise!* the brochures had said, but mostly it replicated the moment of irritation when she learned that she couldn't make the lights come up any faster.

She had no idea how many times she had walked into this room, felt that same irritation, wished she could alter the moment when she ordered the lights. Originally, this had been her office. She hadn't been demoted, just moved, because the Brass thought that perhaps a private office (with tons of extra security) would help Actuarial Engineers stay at the job longer.

So far, it hadn't worked. Reginald had been the fifth AE to leave in the past sixteen months.

She stood with her hands on her too-ample hips. He hadn't even personalized the space. The wall across from him had two dozen screens, all of them scrolling information in real time. His work desk had five more, slowed down to show the problem accounts, and the vid unit—digitized at optimal level for Reginald's personal myopia—wasn't even turned on.

The chair remained at the height the last AE had left it at, the spaces on the desk for photographs had dust, and the air-perfume was still set on Chanel, which was the preference of at least two AEs ago. Reginald didn't strike her as a Chanel-type guy. Maybe, with all this talk of horses, he'd been a Bud and illegal smokes sort, but he hadn't even set the air to imitate that.

Almost as if he'd known he wouldn't last.

She shook off the paranoia and looked at the accounts while she waited for Conrad. Conrad always ran ten minutes late, except when he was fifteen minutes early. It was almost as if he couldn't decide who he was.

She knew who he was. He was a relatively young man with too much responsibility. Conrad was in charge of all of the security on the seventeenth floor—a daunting task, considering the amount of information that flowed through this place.

Public records, bank records, arrest records, personal complaints, grades, salaries, family size, and any other information that someone—anyone, not just the subject—chose to share. People could (and often did) send false information on someone they hated; if the sender got caught, the information went into the sender's file—one of those horrible black marks that Edith feared.

She constantly checked her records and saw only the two legitimate

marks—the middle-management position (and no sign of ambition for a higher place in society) and the childlessness, which could be a plus if her ambition grew. Only she didn't know how to grow ambition. She'd already come a long way. Her mother had been a homemaker in the days when homemakers were shunned as retro-women, and her father, an Iraqi war veteran, never really got over his period of service—moving from job to job to job, each with less pay and less responsibility.

That she managed to rise this high—and stay here—was a bloody miracle if she said so herself, and she did, although not as often as she could have (fearing that someone would report her for repetitious behavior or vainglory or some other minor sin that could besmirch her record if too many people reported disliking her).

"Edie?"

She jumped, even though she recognized the voice as belonging to Conrad. He was one of the few people in the world who called her Edie.

She turned, hand against her beating heart, glad for the cover of her fear. He always made her heart beat faster. He was six feet tall, broad-shouldered, and strong featured. He had a classic twentieth century handsomeness—the kind you saw on war recruitment posters during World War II (her area of expertise in college, all those years ago)—and his voice, a rumbling baritone, seemed to match it.

A few of the women said he was too perfect, suspecting him of abusing enhancements to improve his physical appearance (even in this day and age, women were supposed to do anything they could to improve their physical appearance, but men should abstain for fear of focusing too much on good looks over character). Edith believed he was one of the few humans on the planet born with his incredible good looks. No matter how much she stared at him (and she stared at him too much), she couldn't see evidence of any surgical procedure, nano or otherwise.

"You seem jumpy." He came all the way into the office, and closed the door. Something in his movement jarred the wall system and both glass-shutters opened, as if preventing some kind of physical (albeit unplanned) rendezvous.

"I hate this," she said. "EISH got to him."

EISH was short for the Everyone Is Someone's Hero Society, with the last "s" dropped because EISHS was too hard to say. If Edith had been running the Society, she would have given it another acronym altogether because EISH sounded too much like "ish" for her tastes.

"I don't know how EISH got in," Conrad said. "I've added more secure equipment to this room than any other place in the building. We even have guards posted outside—real, living, breathing guards—just so that no strangers get inside the elevators coming up to the seventeenth floor."

Edith shrugged. "He screamed, then came out at top speed to tell me about his grandfather and a plastic pony, and how that made him the man he is today."

Conrad sighed. "Sounds like EISH."

He leaned against the desk and crossed his arms. He stared at the information still scrolling on the wall across from him, but he clearly wasn't seeing it.

Edith sank into the chair. It felt comfortable, familiar, as if she had come home. Here she didn't feel quite as heavy; here she didn't feel quite as useless or out of date.

She sprang up.

"Check the chair," she said.

"They did chairs two years ago. They're not going to—"

"Check the chair."

He sighed a second time—what other response could they all have to EISH but sigh?—and crouched. While he worked, Edith paced.

Technically, EISH wasn't her responsibility. The Brass was supposed to monitor EISH and all other like-minded groups. There were divisions that handled anti-EISH spin; divisions that persecuted EISH members to the full extent of the law; and, it was rumored, divisions that sent EISH members into the database earlier than they deserved to go.

But technically, Actuarial Engineers were supposed to prevent database tampering. Even though it was against the company's best interest, Actuarial Engineers were supposed to double-check suspicious information—especially information provided about a hated person or a person who belonged to a hated organization (like EISH). This protected the corporation from class action lawsuits, too much government oversight, and the occasional overzealous politician/prosecutor/investigative reporter.

After all, EISH had a point that most people sympathized with: Every life had value. Sometimes the value was as small as giving a plastic horse to a child you'd never see again. Sometimes the value was being the person everyone ran to in a crisis (Edith would have to see if that somehow made it into her file—a white mark to counteract the black). Sometimes the value was in living the perfect American life—2.5 children, a dog, a house, too much credit, and perfect attendance at the marginally useful job.

This sentimental view, which even she had some sympathy with, appealed to everyone whose life hadn't exactly gone the way he'd planned. The person who woke up at forty, realizing that he wasn't going to get the chance to buy enhancements that would make him a star quarterback (those were age-limited to the under-thirty crowd, no matter what your innate talent level) or that he wasn't going to be a wunderkind in any subject because wunderkinds all died before they turned forty, usually of some self-inflicted something or other.

EISHies, as she called them, gave succor to the hopeless, hope to the fearful, and pap to everyone else. They simply didn't understand the way the world had to work.

"Yup," Conrad said. "They got the chair. I'm going to have to boost the scans again. They put a low energy chip into this thing. It must've been working on him for weeks before he finally blew."

Blew. That was a term. Actuarial Engineers went through a battery of personal tests, showing that they lacked the kind of sentimental bent that made EISH appeal to most people. AEs were as close as people got to being robots themselves, or so personnel had told Edith after the fifth AE blew his cool and left.

People who got hired by Crunchers, Inc., which was a branch of Number Crunchers, Inc., a branch of Statistical and Numerical Services, Inc.,

a branch of—well, she couldn't remember, not that she had to. She'd only gone to the third level when she'd been applying here.

Suffice to say that the job of Crunchers, Inc., and companies like this, was to assist decision-makers in those hardest of hard decisions.

The ones that involved life and death.

Rather than applying a standard of morality that varied from person to person or township to township, Crunchers, and companies like it, made certain that decisions occurred on a level playing field.

Each American life (someday, the bigwigs hoped, each life) would be reduced to a series of positives and negatives. The intrinsic value of the human being—not just his political clout and financial worth (although those factored in; no one could ignore the way that money talked, even now), but his value to society, how much has he contributed in a variety of measures—as a teacher, as a valued member of his own community, as a giver of advice. Is he a good parent? Have his children grown to become equally valued members of the society or are they in prison/unemployed/living on some sort of benefits? Has he had a positive influence on the people around him?

Each action could cause a reaction—good and bad. The programs worked out a level of disgruntledness proportionate to fame or good fortune or (in cases like Conrad's) simple good looks (figuring that jealousy created bad human behavior). There were also the health factors—was this person keeping good enough care of himself so that he wouldn't become a burden on society—too much alcohol, too much food, too little exercise (unless these things were matched by weight loss surgeries and overnight nano-exercises, things that only a fortunate few [like Edith] could afford).

In other words, the programs kept a functional and relatively simple database—most people fell into easily predictable categories.

It was the folks who led non-traditional lives who were the problems, and they fell under the auspices of the relatively robotic AE, who gave the information a somewhat human glance and decided what category the person belonged in.

Somehow, organizations like EISH had discovered the AEs and even worse, found their names. Now AEs were targets, and all of them seemed to be breaking under the pressure.

"Got it." Conrad held up a chip the size of a fruit fly. "I'll analyze it, but I'm sure it's an EISH component."

"Scan the room for more of them. And find out how it got on the chair."

He gave her a lazy grin that warmed her more than it should have. "Yes, ma'am. And what'll you do?"

"Besides fill out report after report on poor, broken Reginald?" She sighed, making this one gusty and long, so that Conrad knew he wasn't alone in his disgust. "Find a replacement, of course."

The replacement, Edith decided, had to be someone with no trace of sentimentality. No hidden plastic horses, no loving spouse, nothing that could pry through the shield of that person's loyalty to numbers, statistics, and the purity of formula.

She no longer allowed personnel to make the final decision. She added a few interviews of her own.

It took a week before the seventeenth floor got its new AE. That put seventeen behind all the other floors in the building, a serious problem. Life and death decisions were being made all over the country, and the files that had been routed to seventeen couldn't be accessed.

That meant doctors who needed to know which patients deserved life-saving treatments couldn't find out; insurance companies couldn't figure out who deserved the high-end coverage; extended-living facilities and comfortable retirement centers couldn't evaluate applications—at least, not for the thirty thousand or so files normally processed each week on floor seventeen.

If this went on too long, seventeen would get docked (and black-marked). More than a month, and everyone on seventeen would be fired for lack of productivity—and would then try to find a new job.

Edith shuddered. Job loss wasn't a black mark on the permanent files, but job loss resulting in demotion was, and if she got fired along with everyone else on seventeen because they couldn't find an AE, then she would never find a mid-level management position again. She'd be an "average" worker, and more than black marks, one thing you didn't want in your permanent record was the word "average."

So she went above and beyond. She stayed late, reviewing applicants' life histories, breaking an unwritten rule and investigating their permanent files in search of sentimentality. (Technically personnel was supposed to look through permanent files for mundane things, like genetic predisposition to various diseases, criminal records, criminal charges, and personal complaints. To look for something more specific, like family history or a tendency toward weeping at sad movies, was against some Federal law that personnel could cite chapter and verse [and did whenever Edith asked them to do it], but Edith didn't care. She wanted the best AE possible, and that meant taking extraordinary measures.)

She also had Conrad beef up security to the room—again. She looked in the budget to see if there was money to secure the AE's place of residence as well. EISH had become quite sophisticated; its anti-formula programs slowly bombarded the AE's subconscious with sentimental stories of the ways that the smallest of encounters could trigger life-changing events.

Even EISH didn't argue that everyone should be saved. The serial killer, the repeat child molester—their bad deeds outweighed any potential for good. Despite the word "everyone" in EISH's title, they were really arguing for the ordinary person, the average person, the person who, when they died, wouldn't have enough accompaniments to fill a fifteen-second obituary spot on the Mourning Network.

Edith always thought (privately) that the founders of EISH were trying to protect themselves and their families. She always argued (publicly) that if EISH wanted to help the entire well-behaved world get extended-life treatments or the best medical care, then EISH shouldn't concentrate on changing the formulas that companies like Crunchers used.

EISH should get more and more people to live on the high end of the

Crunchers' scale. EISH should encourage them to give more to charity or donate genetic material or house foster children. If more people wanted the benefits of an exemplary life, they should live one.

Even though it was hard. Edith was falling short, but at least she tried. She didn't go through day-to-day sleepwalking. She actually thought about each action, and its equal or opposite reaction.

She knew she was taking risks interviewing the AE candidates herself, but she figured the benefits outweighed any chance she took.

And finally, within seven days, she found the perfect candidate.

He was tall and thin and homely. He wore black wool suits, white shirts, and work boots, all of which looked like they'd come from a second-hand store. He lived alone. His parents had died when he was young, and he'd been shuttled from foster home to foster home, never staying long enough to make attachments. He had been an excellent student who graduated with degrees in economics, applied mathematics, and computer analysis, but he didn't read for pleasure nor did he see movies, play games, or socialize.

He'd never had a pet. He'd never, so far as Edith could tell, had a friend. He'd never supported a cause or taken a stand. He ate every meal placed in front of him without complaint. He wasn't even a vegetarian, as so many of these systems guys were.

Edith could find nothing—in his resume, in his history with the company (in a lesser department; straight accounting), in his own personal life files—that showed a trace of sentimentality. There wasn't even a place where sentimentality could breed—nothing, so far as she could see, that would give those relentless little chips that EISH was so fond of placing (somehow!) in this company a way to make him see the facts and figures he was crunching as human beings.

His name was Bartleby Plante, and he could start immediately. In fact, accounting was happy to transfer him to the seventeenth floor.

Edith ran through the training and Plante had no questions at all, rare for someone in this job, most of whom would ask for certain kinds of clarification, like "What does living alone really mean? Is she alone if she has a dog?" or "Does it matter how long ago his last act of kindness really was?"

Plante simply nodded, took notes, and then set to work.

By the end of the business day, he'd gone through five hundred files, more than any other AE had done on a single day. Edith had to stay late to check his work, and she found no fault with it.

If anything, he was a bit too strict—if someone huddled on the cusp of "deserves Excellent Treatment" and "has earned Good Treatment," Plante always gave them the Good Treatment recommendation.

Of course, Edith recommended that to new AEs, with the caveat that good treatment costs all businesses who contract with Crunchers, Inc. less than excellent treatment, and one should save money where one could.

Still, all other AEs, faced with a subject one-quarter of a percentage away from Excellent Treatment, upgraded that subject. It seemed like the most humane thing to do.

But, she reminded herself that first night, she hadn't hired Plante to be humane. She'd hired him to make judgments that fell outside the normal parameters, and if he was slightly harsher than most, it simply meant she wouldn't lose him to EISH infiltration quite as quickly as some.

After a few days of checking, she felt satisfied that Plante could do the job. Sure, she had to tweak his process a little. If a subject was one-sixteenth of a percentage into Excellent Treatment country, Plante would downgrade them, and Edith had to remind him that once they earned Excellent Treatment, no matter how narrowly, they deserved to stay there.

Until, of course, their behavior moved them down a category—but she didn't say that to Plante. He would not get a chance to review a file twice. Reviews moved up the floors—next year, new information would move everyone processed on seventeen to eighteen, and so on, as a sort of double-check. Of course, once a file had an eyeball review which was, at heart, Plante's job, then the file tended to remain in whatever category it had been assigned—usually all the way to the bitter end.

Edith liked the system. She believed in the system. It was so much better than having individual doctors, for example, deciding which patients got the most expensive treatments based on personal likes and dislikes or on the desire to perform that particular new experimental procedure or on ability to pay.

Edith believed in all that, she truly did. She felt sorry for the people who didn't qualify for everything they wanted—few did!—but in the end, it was their own damn fault.

She found comfort in that.

She was certain she did.

Plante irritated her.

She couldn't confess that to anyone. She had stressed that she needed the perfect EISH-proof employee, and she had found that in Plante.

But . . .

He ate tuna-fish sandwiches for lunch, and the smell stayed in the office until closing. He picked his teeth while he waited for the on-floor barista to make his coffee. He didn't seem to dry clean his suits regularly, and his boots had a faint barnyard odor.

Finally, Edith had to go to his office after he left and set the air-perfume on Scrub followed by Lilac, not caring that it was a gender-associated scent. She needed the strongest smell she could find to cover his odors, not to mention the strongest smell she could stand.

She sent a memo to personnel so that someone would discuss his hygiene with him, and hoped it would do some good. She didn't want to disturb him more than she already did.

He scuttled away from her when he saw her, wouldn't make eye contact, and spilled his mocha-cream double-tall the first time she said hello to him during the mid-afternoon mandatory coffee break.

She tried to shrug it off—after all, a lot of people had trouble with her: she was the highest-ranking manager on seventeen—but she couldn't entirely shake the feeling she'd made a mistake.

So she watched him. Watched him interact with the other employees (he

didn't); watched him arrive first thing in the morning (his breakfast came with him: McDonald's biscuit with cheese); watched him lock up at night (always the same movement—a press of the palm to the doorknob, then a double-check with the other hand, just to make sure the door was locked).

He said hello to no one—not even the barista on the two mandatory coffeebreaks—acknowledged no one, and shied away from any personal contact at all. If someone brushed against him in the elevator, he moved as if he'd been hit. If someone grinned at him, he ducked his head and looked away.

None of this was in his file, of course. He wasn't listed as anti-social, just shy. So nothing pathological had come from this—and, she supposed, it was all expected, given his upbringing. He'd never learned any of the major social skills.

But he should know them, shouldn't he? So that he could make evaluations? So that he could decide that a woman who smiled at babies sometimes saved them in a crisis—but said crisis hadn't happened yet, so it couldn't be counted on her record. But the smiling should be.

Or a man who gave money to the legion of homeless (those who hadn't behaved well enough to let the system help them or who opted out of the system entirely) wasn't that bad after all. He was just trying to provide what he could for people who couldn't help themselves. There was no guarantee that those deadbeats would use the money to buy alcohol or drugs—and wasn't it on the plus side for the man that he didn't quiz the recipients on how they'd use the money he'd given them? He trusted them to make the best decision for themselves.

Edith's head was swirling with this and all the other factors that Plante had to consider for his job. She wanted to ask him if he realized he initially got a high rating because of his difficult childhood. For the first ten years of an adult's life, a difficult childhood gave him a pass—an excuse to miss on certain things like marriage in your twenties or learning personal hygiene.

After ten years, though—and Plante was right on that cusp—difficult childhoods faded in importance. The cultural assumption (again a correct one as far as Edith was concerned) was that adults should learn and grow, and yes, a difficult childhood handicapped people but they should learn the things they missed in childhood in their twenties, making them much better citizens in their thirties.

She found herself idly searching his file, looking for his exact birth date, the day he would turn thirty and become, in society's eyes, accountable for his own weirdness.

And that was when she realized she was stepping over a line. She wasn't quite sure what the line was, except that she knew it had to do with obsession, and, eventually, she would get caught.

Another black mark on a file that couldn't afford any more.

So, she contacted Conrad, met him in a coffee bar off-premises after hours, and waited the requisite ten minutes because he was, as usual, late.

He arrived, wearing the same twill pants he'd worn that day in the office with a different shirt (a brown that accented his coloring) and his hair slicked back.

He looked nice.

She wondered if that was for her, then decided it wasn't. Men like Conrad were never interested in women like Edith. They had nothing in common except their jobs, and she wasn't pretty enough, smart enough, or interesting enough to keep him satisfied for very long.

The other women in the bar watched him walk across the room. The bar was small, with ferns against dark wood paneling—some kind of faux twentieth century look—and the entire place smelled of coffee mixed with vanilla, a smell that always made Edith hungry.

"Out of the office," he said as he sat down. He was smiling, which he didn't do at work either. "Clandestine meetings, secret talks. Are we suddenly spies?"

She smiled, but waited to answer him until the waitress took his order—a plain black go-for-the-throat charger with extra caffeine, a man's drink. A macho man's drink.

"I may have made a mistake with Plante," she said.

Conrad looked sympathetic.

"May I tell you my worries?" she asked.

"Is this on- or off-the-record?" he asked.

She shrugged. "Which is safer?" she asked, knowing that either could backfire.

"Just tell me," he said, and he, the head of the seventeenth floor's security, would make the decision for her.

Somehow she found that comforting. She found him comforting.

So she told him her observations and her fears about Plante. Conrad listened (they ended up having dinner), and then asked, "Isn't that what you wanted?"

She blinked at him, not quite sure what he meant.

"A person who couldn't be persuaded by anything EISH threw at him, a person without sentiment, a person who saw the world in numbers and codes and absolutes. Isn't that why you got involved, so that you'd get the exact right man?" Conrad pushed his plate aside—he'd had a sandwich made from some kind of thinly sliced beef so rare it didn't look like it'd been cooked—and folded his hands on the table.

"I didn't expect him to be so cold," she said, and realized how lame that sounded. She had picked at her salad, which she had ordered to impress Conrad with her restraint, not because she really wanted it.

"How could he be anything but?" Conrad asked. "You wanted no sentiment."

"Sentiment's a bad thing in this job," she said.

"Is it?" his voice was soft. "Maybe compassion's a better word then."

She frowned.

"I mean, there's compassion built into the system, right? Isn't that why people with difficult childhoods get a pass early on?"

"The pass doesn't cost much," she said. "Younger people don't have as many illnesses. They often don't have insurance, and they're not usually involved in life-and-death decisions. If they're in an emergency room, it's usually because of their own stupidity, which by every form, counts against them."

Conrad's lips turned up, but he wasn't smiling. "So there's compassion when it doesn't cost anything."

She nodded.

"And isn't that what you're complaining about?"

She frowned again.

"The eighteenthths of a percentage point—he's waiting for a perfect score to move people up and down the scale, but really, how much difference is there for people who are on the cusp, people who deserve more privileges in this society or nearly do?"

She shrugged. "Some."

"Then I don't see what the problem is," Conrad said.

The smell of vinegar was beginning to turn her stomach. She pushed her salad away. She was beginning to regret this. She had thought Conrad was sympathetic, but he was like all the others.

He didn't understand the fineness of her position, the way it sometimes became personal. If Plante were reviewing her file, he wouldn't look at her previous weight losses. He wouldn't look at the fact she was the first manager in her entire family, the first non-blue-collar worker, the first person to make something of herself by her familial standards.

She was too old for him to look at familial standards. Her previous weight losses were too far in the past. She'd relied on surgery and tricks recently, and that wouldn't wash.

She hadn't had children, didn't give enough money to charities, worked in the Crunching industry which—because crunchers didn't want to be accused of bias—actually counted against her (but because crunchers did the work, was often bypassed as a "non-consideration"). Plante wouldn't make that a non-consideration. He'd examine each of the past five years for black marks and recommendations, for her good work and her bad. He'd see that no one would really miss her if she disappeared, and he'd mark that into her file, and no one would review it, not for quite a while, and if she suddenly found herself with some kind of strange cancer or something, she wouldn't get the preferential treatment she would have received in her thirties, when she was still up and coming, when she was a potential wife, a potential parent, a potential CEO, someone who would eventually become a major contributing member of society, who, even if she didn't have family, would sit on boards of various charities, and give a healthy percentage of her eight-figure income to various needy folk, and would serve as a role model to children of blue-collar workers everywhere.

She'd stalled, grown content, felt no urge to move on, and her files would reflect that. The statistics said she wasn't going to improve any longer, and Plante would know that, instead of looking at her and realizing that just by getting involved in his hiring, she was showing ambition again.

She was striving. She just wasn't doing a very good job at it.

"Edie?" Conrad asked. "You okay?"

She made herself take a deep breath. She nodded, regretting this conversation, regretting speaking to anyone on or off the record.

"I'm fine," she said. "Thanks for coming, Conrad. I appreciate your time."

Then she patted him on the hand, grabbed the bill, and swiped it through the pay register on the side of the table, then pressed her right index finger on the marker, so that she paid out of the correct account.

He was trying to say something as she walked away, but she didn't stop. She couldn't stop.

She felt like a fool—and she wasn't exactly sure why.

She became sure when she arrived at work two days later to find her boss, Conrad, and three members of upper management huddled around her desk.

Conrad looked at her guiltily, but the others had a coldness in their eyes. She recognized that coldness; she'd felt it too whenever she'd had to confront a misbehaving employee.

"What's wrong?" she asked.

Conrad held up a chip. It was barely the size of a grain of sand. She had to squint to see it.

"EISH," he said. "They couldn't reach Plante—in any way—so they got you."

She felt a flare of anger that she immediately suppressed. Anger would guarantee that she would lose this fight—and fight it was, sudden and terrifying.

"I told you I wasn't being sentimental," she said, sounding a bit clipped. She made herself breathe.

The others looked at her as if she were a subspecies of bug. Conrad bit his lower lip, an attractive look for him.

"I'll walk you through the termination procedure," he said gently. "It's the least I can do, since I had to report that conversation."

She had known he would. No matter what she'd said, on the record or off, she had known he would report her. She would have reported anyone who said those things—if she didn't believe in the person. If she hadn't trusted them.

Apparently, Conrad hadn't trusted her.

"You had to know I'd do that," he said into her silence. "You gave me the choice."

She glared at the other three, who looked away from her, as if she were tainted somehow, as if, even by being close to her, they would ruin their own careers.

They had decided. Anything she did now would simply make matters worse. A black mark—being fired!—would become a stain if she fought too hard. She might never find another job if she protested. Someone would write her up as "irrational," "emotional," or "uncooperative."

"All right," she said to Conrad. "Walk me through."

She knew the procedure better than he did. She had to help him when he got stuck, remind him that she needed her final check and the contents of her personal drawer.

He didn't say much as he did the work, although he did have trouble meeting her gaze.

Finally, it was done. She grabbed her pitiful box of personal belongings

and headed for the door—away from the prying eyes, the people who peered from the sides of their cubicles, the private glee that some of them would feel at losing a manager no matter what the cause.

Plante didn't even look to see what the disturbance was. He didn't seem to care—and why would he? That was the problem, after all.

Conrad caught up to her, took the box from her, and pushed the door open with his foot.

"You don't have to do that," she said.

"Yes, I do," he said.

According to company regulations, he had to make sure she left, had to certify that she had walked out the front door, taking nothing from the company except her check and doing no vandalism as she went.

She resented that. She rarely accompanied any employee out—only the ones who were certifiable or who seemed unduly angry. The rest, she monitored through the company's surveillance system, letting it verify when they had left.

Conrad stood silently beside her as the elevator took them down all seventeen floors—a trip that seemed to take most of her life. Then he followed her as she marched to the front door, feeling the gaze of two dozen people in reception following her as she left for the very last time.

Outside, it was sunny and warm, the air smelling faintly of hamburgers being grilled at the diner next door, the diner she had never gone into for fear it (and the preferences it implied) would show up on her record.

Maybe she'd go in there. Maybe she'd eat every greasy salty sugary thing on the menu. Then she'd go home and lay on her couch and order the worst movies ever made, play the most violent interactive internet games she could find, and maybe even indulge in some illegal porn downloads.

Who cared, after all? She had more black marks than she could fight. Her record had gone from not-bad to worrisome in the space of an afternoon.

"I'm sorry," Conrad started.

"Save it," she said, reaching for her box.

"I mean it," he said. "I had to keep my job. You know that, right?"

And he said it with some kind of weird emphasis, as if she should have an in-depth understanding of what he was talking about.

"Yeah," she said. "We all feel that way in the real world."

He winced. He moved the box away from her, and stepped toward the curb.

"They're going to fire Plante," he said.

She hadn't known that. She wasn't sure she cared.

"He's compromised. You hired him by going outside procedure."

She blinked. "He's the perfect man for the job."

"Yes," Conrad said. "But this way . . ."

His voice trailed off. He leaned toward her, giving her the box, but as she slid her fingers through the cardboard handholds, he clung.

"EISH couldn't get to him," Conrad was whispering now. "We knew this was the only way."

"We?" Edith asked.

He nodded. "I had to stay. Do you know how hard it is to keep a guy like me on the seventeenth floor?"

He let go of the box. Her head was spinning. What was he saying?

"Conrad, are you—?"

He put a finger on her lips. "You'll be all right," he said. "I'll make sure of it."

And then he walked away from her, disappearing back into the Crunchers' building, the place she had spent most of her adult life. A place she had believed in.

Or maybe it had just been a place she'd feared. And maybe, by working there, she had tried to control those fears.

She had taken it to an extreme with Plante. Whom Conrad had gotten fired. The only man doing a superb job, and Conrad had found a way to get rid of him.

By getting rid of Edith too.

She hefted the box, glanced at the diner, and thought about it. Eating her way through her problems wasn't the answer. She'd have to do what she recommended to so many others—career counseling, a personal reassessment, a quiet contemplation of what she really wanted from life.

Maybe she hadn't contributed much because she'd been stuck in her fear instead of living her life.

Maybe.

Or maybe she had just been going through the motions, like everybody else. Marking time until someone made a decision for her.

Like EISH had.

Like Conrad had.

At her request. She had been trapped with Plante, a creature of her own making; Conrad had freed her.

If she understood him right, he was getting rid of all the Plantes, making sure that certain things didn't go any farther.

She stared at that diner door, silver on the outside and spotless because of city regulations, but a faint greaseline coated the interior. The man at the counter was as round as she was. The woman behind it had gray hair and wrinkles all over her face.

Imagine living a life like that—without worrying about each movement, each decision. Without thinking about black marks and ratings. Taking the consequences when the time came—but not before.

Just going through life, the way people did before computers and information-gathering and streamlined decision-making regulations.

Imagine having a piece of pie because she wanted a piece of pie—not because she was allowed one on her current program or because she could afford one given the amount of exercise she'd done.

She glanced at the Crunchers' building, and then at the diner. She'd never before seen the irony in them being side by side. She studied them, thought about them, shifted her box from one hip to the other.

And then she walked away, heading—

She didn't know where. She didn't care. Somewhere new.

Somewhere undefined.

Somewhere very different from here. ○

SCIENCE FICTION SUDOKU

This SF Sudoku puzzle, the subject of which was suggested by second-place contest-winner John N. Marx, is solved using the letters ADEHIMNSU. Place a letter into each box so that each row across, each column down, and each small nine-box square within the larger diagram (there are nine of these) will contain each of these letters. No letter will appear more than once in any row, column, or smaller nine-box square. The solution is determined through logic and the process of elimination. Beneath the puzzle is a set of twenty blanks. Rearrange the following letters for a famous SF title: A, D, E, E, H, I, M, N, S, S, and U. The answers for the Sudoku puzzle and the anagram can be found beneath our classified ads on page 143. The solution to each puzzle is independent of the other. We've inverted the answer to the anagram so that you don't come upon it by accident.

U			N	I	E			
H	I					U		S
		E			U		M	
	U			M	I		H	
E		H				A		M
	M		D	A			U	
	N		S			M		
A		S					N	H
			A	E	N			U

TIN MARSH

Michael Swanwick

Patang races through the blazing Venusian heat in a desperate flight for survival.

It was hot coming down into the valley. The sun was high in the sky, a harsh white dazzle in the eternal clouds, strong enough to melt the lead out of the hills. They trudged down from the heights, carrying the drilling rig between them. A little trickle of metal, spill from a tanker bringing tin out of the mountains, glinted at the verge of the road.

A traveler coming the other way, ten feet tall and anonymous in a black muscle suit, waved at them as they passed, but, even though it had been weeks since they'd seen another human being, they didn't wave back. The traveler passed them and disappeared up the road. The heat had seared the ground here black and hard. They could leave the road, if they wanted, and make almost as good time.

Patang and MacArthur had been walking for hours. They expected to walk for hours more. But then the road twisted and down at the bottom of the long decline, in the shadow of a basalt cliff, was an inn. Mostly their work kept them away from roads and inns. For almost a month they'd been living in their suits, sleeping in harness.

They looked warily at each other, mirrored visor to mirrored visor. Heat glimmered from the engines of their muscle suits. Without a word, they agreed to stop.

The inn radioed a fee schedule at their approach. They let their suits' autonomic functions negotiate for them, and carefully set the drilling rig down alongside the building.

"Put out the tarp," MacArthur said. "So it won't warp."

He went inside.

Patang deployed the gold foil tarp, then followed him in.

MacArthur was already out of his suit and seated at a cast-iron table with two cups of water in front of him when Patang cycled through the airlock. For an instant she dared hope everything was going to be all right.

Then he looked up at her.

"Ten dollars a cup." One cup was half empty. He drank the rest down in one long gulp, and closed a hairy paw around the second cup. His beard had grown since she had last seen it, and she could smell him from across the room. Presumably he could smell her too. "The bastards get you coming and going."

Patang climbed down out of her suit. She stretched out her arms as far as they would go, luxuriating in the room's openness. All that space! It

was twenty feet across and windowless. There was the one table, and six iron chairs to go with it. Half a dozen cots folded up against the walls. A line of shelves offered Company goods that neither of them could afford. There were also a pay toilet and a pay shower. There was a free medical unit, but if you tried to con it out of something recreational, the Company found out and fined you accordingly.

Patang's skin prickled and itched from a month's accumulation of dried sweat. "I'm going to scratch," she said. "Don't look."

But of course MacArthur did, the pig.

Ignoring him, Patang slowly and sensuously scratched under her blouse and across her back. She took her time, digging in with her nails hard enough almost to make the skin bleed. It felt glorious.

MacArthur stared at her all the while, a starving wolf faced with a plump rabbit.

"You could have done that in your suit," he said when she was done.

"It's not the same."

"You didn't have to do that in front of—"

"Hey! How's about a little conversation?" Patang said loudly. So it cost a few bucks. So what?

With a click, the innkeeper came on. "Wasn't expecting any more visitors so close to the noon season," it said in a folksy synthetic voice. "What are you two prospecting for?"

"Gold, tin, lead, just about anything that'll gush up a test-hole." Patang closed her eyes, pretending she was back on Lakshmi Planum in a bar in Port Ishtar, talking with a real, live human being. "We figured most people will be working tracts in the morning and late afternoon. This way our databases are up-to-date—we won't be stepping on somebody's month-old claim."

"Very wise. The Company pays well for a strike."

"I hate those fucking things." MacArthur turned his back on the speaker and Patang both, noisily scraping his chair against the floor. She knew how badly he'd like to hurt her.

She knew that it wasn't going to happen.

The Company had three rules. The first was No Violence. The second was Protect Company Equipment. The third was Protect Yourself. All three were enforced by neural implant.

From long experience with its prospectors, the Company had prioritized these rules, so that the first overruled the second, the second overruled the third, and the third could only be obeyed insofar as it didn't conflict with the first two. That was so a prospector couldn't decide—as had happened—that his survival depended on the death of his partner. Or, more subtly, that the other wasn't taking proper care of Company equipment, and should be eliminated.

It had taken time and experience, but the Company had finally come up with a foolproof set of algorithms. The outback was a functioning anarchy. Nobody could hurt anybody else there.

No matter how badly they needed to.

The 'plants had sounded like a good idea when Patang and MacArthur

first went under contract. They'd signed up for a full sidereal day—two hundred fifty-five Earth days. Slightly longer than a Venusian year. Now, with fifty-nine days still to go, she was no longer certain that two people who hated each other as much as they did should be kept from each other's throats. Sooner or later, one of them would have to crack.

Every day she prayed that it would be MacArthur who finally yanked the escape cord, calling down upon himself the charges for a rescue ship to pull them out ahead of contract. MacArthur who went bust while she took her partial creds and skipped.

Every day he didn't. It was inhuman how much abuse he could absorb without giving in.

Only hatred could keep a man going like that.

Patang drank her water down slowly, with little slurps and sighs and lip-smackings. Knowing MacArthur loathed that, but unable to keep herself from doing it anyway. She was almost done when he slammed his hands down on the tabletop, to either side of hers, and said, "Patang, there are some things I want to get straight between us."

"Please. Don't."

"Goddamnit, you know how I feel about that shit."

"I don't like it when you talk like that. Stop."

MacArthur ground his teeth. "No. We are going to have this out right here and now. I want you to—*what was that?*"

Patang stared blankly at her partner. Then she felt it—an uneasy vertiginous queasiness, a sense of imbalance just at the edge of perception, as if all of Venus were with infinitesimal gentleness shifting underfoot.

Then the planet roared and the floor came up to smash her in the face.

When Patang came to, everything was a jumble. The floor was canted. The shelves had collapsed, dumping silk shirts, lemon cookies, and bars of beauty soap everywhere. Their muscle suits had tumbled together, the metal arm of one caught between the legs of the other. The life support systems were still operational, thank God. The Company built them strong.

In the middle of it all, MacArthur stood motionless, grinning. A trickle of blood ran down his neck. He slowly rubbed the side of his face.

"MacArthur? Are you okay?"

A strange look was in his eyes. "By God," he said softly. "By damn."

"Innkeeper! What happened here?"

The device didn't respond. "I busted it up," MacArthur said. "It was easy."

"What?"

MacArthur walked clumsily across the floor toward her, like a sailor on an uncertain deck. "There was a cliff slump." He had a Ph.D. in extraterrestrial geology. He knew things like that. "A vein of soft basalt weakened and gave way. The inn caught a glancing blow. We're lucky to be alive."

He knelt beside her and made the OK sign with thumb and forefinger. Then he flicked the side of her nose with the forefinger.

"Ouch!" she said. Then, shocked, "Hey, you can't. . . !"

"Like hell I can't." He slapped her in the face. Hard. "Chip don't seem to work anymore."

Rage filled her. "You son of a bitch!" Patang drew back her arm to slug him.

Blankness.

She came to seconds later. But it was like opening a book in the middle or stepping into an interactive an hour after it began. She had no idea what had happened or how it affected her.

MacArthur was strapping her into her muscle suit.

"Is everything okay?" she murmured. "Is something wrong?"

"I was going to kill you, Patang. But killing you isn't enough. You have to suffer first."

"What are you talking about?"

Then she remembered.

MacArthur had hit her. His chip had malfunctioned. There were no controls on him now. And he hated her. Bad enough to kill her? Oh, yes. Easily.

MacArthur snapped something off her helmet. Then he slapped the power button and the suit began to close around her. He chuckled and said, "I'll meet you outside."

Patang cycled out the lock and then didn't know what to do. She fearfully went a distance up the road, and then hovered anxiously. She didn't exactly wait and she didn't exactly go away. She had to know what MacArthur was up to.

The lock opened, and MacArthur went around to the side of the tavern, where the drilling rig lay under its tarp. He bent down to separate the laser drill from the support struts, data boxes, and alignment devices. Then he delicately tugged the gold foil blanket back over the equipment.

He straightened, and turned toward Patang, the drill in his arms. He pointed it at her.

The words LASER HAZARD flashed on her visor.

She looked down and saw the rock at her feet blacken and smoke. "You know what would happen if I punched a hole in your shielding," MacArthur said.

She did. All the air in her suit would explode outward, while the enormous atmospheric pressure simultaneously imploded the metal casing inward. The mechanical cooling systems would fail instantly. She would be suffocated, broiled, and crushed, all in an instant.

"Turn around. Or I'll lase you a new asshole."

She obeyed.

"Here are the rules. You get a half-hour head start. Then I come for you. If you turn north or south, I'll drill you. Head west. Noonward."

"Noonward?" She booted up the geodetics. There was nothing in that direction but a couple more wrinkle ridges and, beyond them, tesserae. The tesserae were marked orange on her maps. Orange for unpromising. Prospectors had passed through them before and found nothing. "Why there?"

"Because I told you to. Because we're going to have a little fun. Because you have no choice. Understand?"

She nodded miserably.

"Go."

She walked, he followed. It was a nightmare that had somehow found its way into waking life. When Patang looked back, she could see MacArthur striding after her, small in the distance. But never small enough that she had any kind of chance to get away.

He saw her looking and stooped to pick up a boulder. He windmilled his arm and threw.

Even though MacArthur was halfway to the horizon, the boulder smashed to the ground a hundred yards ahead of her and to one side. It didn't come close to striking her, of course. That wasn't his intent.

The rock shattered when it hit. It was terrifying how strong that suit was. It filled her with rage to see MacArthur wielding all that power, and her completely helpless. "You goddamned sadist!"

No answer.

He was nuts. There *had* to be a clause in the contract covering that. Well, then . . . She set her suit on auto-walk, pulled up the indenture papers, and went looking for it. Options. Hold harmless clauses. Responsibilities of the Subcontractor—there were hundreds of those. Physical care of the Contractor's equipment.

And there it was. There it was! *In the event of medical emergency, as ultimately upheld in a court of physicians . . .* She scrolled up the submenu of qualifying conditions. The list of mental illnesses was long enough and inclusive enough that she was certain MacArthur belonged on it somewhere.

She'd lose all the equity she'd built up, of course. But, if she interpreted the contract correctly, she'd be entitled to a refund of her initial investment.

That, and her life, were good enough for her.

She slid an arm out of harness and reached up into a difficult-to-reach space behind her head. There was a safety there. She unlatched it. Then she called up a virtual keyboard, and typed out the SOS.

So simple. So easy.

DO YOU REALLY WANT TO SEND THIS MESSAGE? YES NO

She hit YES.

For an instant, nothing happened.

MESSAGE NOT SENT

"Shit!" She tried it again. MESSAGE NOT SENT A third time. MESSAGE NOT SENT A fourth. MESSAGE NOT SENT She ran a troubleshooting program, and then sent the message again. MESSAGE NOT SENT

And again. And again. And again.

MESSAGE NOT SENT

MESSAGE NOT SENT

MESSAGE NOT SENT

Until the suspicion was so strong she *had* to check.

There was an inspection camera on the back of her suit's left hand. She held it up so she could examine the side of her helmet.

MacArthur had broken off the uplink antenna.

"You jerk!" She was really angry now. "You shithead! You cretin! You retard! You're nuts, you know that? Crazy. Totally whack."

No answer.

The bastard was ignoring her. He probably had his suit on auto-follow. He was probably leaning back in his harness, reading a book or watching an old movie on his visor. MacArthur did that a lot. You'd ask him a question and he wouldn't answer because he wasn't there; he was sitting front row center in the theater of his cerebellum. He probably had a tracking algorithm in the navigation system to warn him if she turned to the north or south, or started to get too far ahead of him.

Let's test that hypothesis.

She'd used the tracking algorithm often enough that she knew its specs by heart. One step sideways in five would register immediately. One in six would not. All right, then . . . Let's see if we can get this rig turned around slowly, subtly, toward the road. She took seven strides forward, and then half-step to the side.

LASER HAZARD

Patang hastily switched on auto-walk. So that settled that. He was watching her every step. A tracking algorithm would have written that off as a stumble. But then why didn't he speak? To make her suffer, obviously. He must be bubbling over with things to say. He must hate her almost as much as she did him.

"You son of a bitch! I'm going to *get* you, MacArthur! I'm going to turn the goddamned tables on you, and when I do—!"

It wasn't as if she were totally hopeless. She had explosives. Hell, her muscle suit could throw a rock with enough energy to smash a hole right through his suit. She could—

Blankness.

She came to with the suit auto-walking down the far slope of the first wrinkle ridge. There was a buzzing in her ear. Somebody talking. MacArthur, over the short-range radio. "What?" she asked blurrily. "Were you saying something, MacArthur? I didn't quite catch that."

"You had a bad thought, didn't you?" MacArthur said gleefully. "Naughty girl! Papa spank."

LASER HAZARD

LASER HAZARD

Arrows pointed to either side. She'd been walking straight Noonward, and he'd fired on her anyway.

"Damn it, that's not *fair*!"

"Fair! Was it fair, the things you said to me? Talking. All the time talking."

"I didn't mean anything by it."

"You did! Those things . . . the things you said . . . unforgivable!"

"I was only deviling you, MacArthur," she said placatingly. It was a word from her childhood; it meant teasing, the kind of teasing a sister inflicted on a brother. "I wouldn't do it if we weren't friends."

MacArthur made a noise he might have thought was laughter. "Believe me, Patang, you and I are not friends."

The deviling had been innocent enough at the start. She'd only done it to pass the time. At what point had it passed over the edge? She hadn't always hated MacArthur. Back in Port Ishtar, he'd seemed like a pleasant companion. She'd even thought he was cute.

It hurt to think about Port Ishtar, but she couldn't help herself. It was like trying not to think about Heaven when you were roasting in Hell.

Okay, so Port Ishtar wasn't perfect. You ate flavored algae and you slept on a shelf. During the day you wore silk, because it was cheap, and you went everywhere barefoot because shoes cost money. But there were fountains that sprayed water into the air. There was live music in the restaurants, string quartets playing to the big winners, prospectors who had made a strike and were leaking wealth on the way out. If you weren't too obvious about it, you could stand nearby and listen. Gravity was light, then, and everybody was young, and the future was going to be full of money.

That was then. She was a million years older now.

LASER HAZARD

"Hey!"

"Keep walking, bitch. Keep walking or die."

This couldn't be happening.

Hours passed, and more hours, until she completely lost track of the time. They walked. Up out of the valley. Over the mountain. Down into the next valley. Because of the heat, and because the rocks were generally weak, the mountains all had gentle slopes. It was like walking up and then down a very long hill.

The land was grey and the clouds above it murky orange. These were Venus' true colors. She could have grass-green rocks and a bright blue sky if she wished—her visor would do that—but the one time she'd tried those settings, she'd quickly switched back. The falseness of it was enough to break your heart.

Better to see the bitter land and grim sky for what they were.

West, they traveled. Noonward. It was like a endless and meaningless dream.

"Hey, *Poontang*."

"You know how I feel about that kind of language," she said wearily.

"How you feel. That's rich. How do you think I felt, some of the things you said?"

"We can make peace, MacArthur. It doesn't have to be like this."

"Ever been married, *Poontang*?"

"You know I haven't."

"I have. Married and divorced." She knew that already. There was very little they didn't know about each other by now. "Thing is, when a marriage breaks up, there's always one person comes to grips with it first. Goes through all the heartache and pain, feels the misery, mourns the death of the relationship—and then moves on. The one who's been cheated on, usually. So the day comes when she walks out of the house and the

poor schmuck is just standing there, saying, 'Wait. Can't we work this thing out?' He hasn't accepted that it's over."

"So?"

"So that's your problem, Poontang. You just haven't accepted that it's over yet."

"What? Our partnership, you mean?"

"No. Your life."

A day passed, maybe more. She slept. She awoke, still walking, with MacArthur's hateful mutter in her ear. There was no way to turn the radio off. It was Company policy. There were layers upon layers of systems and subsystems built into the walkers, all designed to protect Company investment. Sometimes his snoring would wake her up out of a sound sleep. She knew the ugly little grunting noises he made when he jerked off. There were times she'd been so angry that she'd mimicked those sounds right back at him. She regretted that now.

"I had dreams," MacArthur said. "I had ambitions."

"I know you did. I did too."

"Why the hell did you have to come into my life? Why *me* and not somebody else?"

"I liked you. I thought you were funny."

"Well, the joke's on you now."

Back in Port Ishtar, MacArthur had been a lanky, clean-cut kind of guy. He was tall, and in motion you were always aware of his knees and elbows, always sure he was going to knock something over, though he never did. He had an odd, geeky kind of grace. When she'd diffidently asked him if he wanted to go partners, he'd picked her up and whirled her around in the air and kissed her right on the lips before setting her down again and saying, "Yes." She'd felt dizzy and happy then, and certain she'd made the right choice.

But MacArthur had been weak. The suit had broken him. All those months simmering in his own emotions, perfectly isolated and yet never alone . . . He didn't even *look* like the same person anymore. You looked at his face and all you saw were anger and those anguished eyes.

LEAVING HIGHLANDS

ENTERING TESSERAE

Patang remembered how magical the tesserae landscape had seemed in the beginning. "Complex ridged terrain" MacArthur called it, high ridges and deep groves crisscrossing each other in such profusion that the land appeared blocky from orbit, like a jumble of tiles. Crossing such terrain, you had to be constantly alert. Cliffs rose up unexpectedly, butte-high. You turned a twist in a zigzagging valley and the walls fell away and down, down, down. There was nothing remotely like it on Earth. The first time through, she'd shivered in wonder and awe.

Now she thought: Maybe I can use this. These canyons ran in and out of each other. Duck down one and run like hell. Find another and duck down it. Keep on repeating until he'd lost her.

"You honestly think you can lose me, Patang?"

She shrieked involuntarily.

"I can read your mind, Patang. I know you through and through."

It was true, and it was wrong. People weren't meant to know each other like this. It was the forced togetherness, the fact you were never for a moment alone with your own thoughts. After a while you'd heard every story your partner had to tell and shared every confidence there was to share. After a while every little thing got on your nerves.

"How about if I admit I was wrong?" she said pleadingly. "I was wrong. I admit it."

"We were both wrong. So what?"

"I'm willing to cooperate, MacArthur. Look. I've stopped so you can catch up and not have to worry about me getting away from you. Doesn't that convince you we're on the same side?"

LASER HAZARD

"Oh, feel free to run as fast and as far as you want, Patang. I'm confident I'll catch up with you in the end."

All right, then, she thought desperately. If that's the way you want it, asshole. Tag! You're it.

She ducked into the shadows of a canyon and ran.

The canyon twisted and, briefly, she was out of sight. MacArthur couldn't talk to her, couldn't hear her. Couldn't tell which way she went. The silence felt wonderful. It was the first privacy she'd had since she didn't know when. She only wished she could spare the attention to enjoy it more. But she had to think, and think hard. One canyon wall had slumped downward just ahead, creating a slope her walker could easily handle. Or she could keep on ahead, up the canyon.

Which way should she go?

Upslope.

She set the walker on auto-run.

Meanwhile, she studied the maps. The free satellite downloads were very good. They weren't good enough. They showed features down to three meters across, but she needed to know the land yard-by-yard. That crack-like little rille—did it split two kilometers ahead, or was there a second rille that didn't quite meet it? She couldn't tell. She'd've gladly paid for the premium service now, the caviar of info-feed detailed enough to track footprints across a dusty stretch of terrain. But with her uplink disabled, she couldn't.

Patang ducked into a rille so narrow her muscle suit's programming would have let her jump it, if she wished. It forked, and she took the right-hand branch. When the walls started closing in on them, she climbed up and out. Then she ran, looking for another rille.

Hours passed.

After a time, all that kept her going was fear. She drew her legs up into the torso of her suit and set it to auto-run. Up this canyon. Over this ridge. Twisting, turning. Scanning the land ahead, looking for options. Two directions she might go. Flip a mental coin. Choose one. Repeat the process. The radio was line-of-sight so MacArthur couldn't use it to track her. Keep moving.

Keep moving.

Keep moving . . .

Was it hours that passed, or days? Patang didn't know. It might have been weeks. In times of crisis, the suit was programmed to keep her alert by artificial stimulation of her brain. It was like an electrical version of amphetamines. But, as with amphetamines, you tended to lose track of things. Things like your sense of time.

So she had no idea how long it took her to realize that it was all no use.

The problem was that the suit was so damned *heavy*! If she ran fast enough to keep her distance from MacArthur, it left a trace in the regolith obvious enough to be followed at top speed. But if she slowed down enough to place her walker's feet on bare stone when she could, and leave subtle and easy-to-miss footprints when she couldn't, he came right up behind her. And try though she might, she couldn't get far enough ahead of him to dare slow down enough to leave a trace he couldn't follow.

There was no way she could escape him.

The feeling of futility that came over her then was drab and familiar, like a shabby old coat grown colorless with age that you don't have the money to replace. Sometime, long ago, she'd crossed that line where hope ceased. She had never actually admitted to herself that she no longer believed they'd ever make that big strike—just one day woken up knowing that she was simply waiting out her contract, stubbornly trying to endure long enough to serve out her term and return to Earth no poorer than she had set out.

Which was when her deviling had turned nasty, wasn't it? It was when she had started touching herself and telling MacArthur exactly what she was doing. When she'd started describing in detail all the things she'd never do to *him*.

It was a way of getting through one more day. It was a way of faking up enough emotion to care. It was a stupid, stupid thing to do.

And this was her punishment.

But she couldn't give up. She was going to have to . . . She didn't finish that thought. If she was going to do this unnamed thing, she had to sort through the ground rules first.

The three rules were: No Violence. Protect Company Equipment. Protect Yourself. They were ranked hierarchically.

Okay, Patang thought. In order to prevent violence, I'm going to have to destroy Company property.

She waited to see if she'd pass out.

Nothing happened.

Good.

She'd come to a long ridge, steep-sided and barren and set her suit to auto-climb. As she climbed, she scanned the slope ahead, empty and rock-strewn under a permanently dazzling cover of sulfuric acid clouds. Halfway up, MacArthur emerged from the zigzagging valley below and waved jauntily.

Patang ignored him. That pile of boulders up ahead was too large. Those to the right were too small. There was a patch of loose regolith that looked promising but . . . no. In the end, she veered leftward, toward a shallow

ledge that sheltered rocks that looked loose enough to be dislodged but not massive enough to do any serious damage to MacArthur's suit. All she wanted was to sweep him off his feet. He could survive a slide downslope easily enough. But could he hold onto the laser drill while doing so?

Patang didn't think so.

Okay, then. She took her suit off automatics and climbed clumsily, carefully, toward her destination. She kept her helmet up, pointed toward the top of the ridge, to avoid tipping MacArthur off to her intentions.

Slantwise across the slope, that's right. Now straight up. She glanced back and saw that she'd pulled MacArthur into her wake. He was directly beneath her. Good. All systems go.

She was up to the ledge now.

Stop. Turn around. Look down on MacArthur, surprisingly close.

If there was one thing Patang knew, after all these months, it was how easy it was to start a landslide. Lean back and brace yourself here, and start kicking. And over the rocks go and over the rocks go and—

LASER HAZARD

"Ohhhh, Patang, you are so obvious. You climb diagonally up a slope that any ordinary person would tackle straight on. You change direction halfway up. What were you planning to do, start an avalanche? What did you think that would accomplish?"

"I thought I could get the laser away from you."

"And what good would that do? I'd still have the suit. I'd still have rocks. I'd still have you at my mercy. You hadn't really thought this one through, had you?"

"No," she admitted.

"You tried to outwit me, but you didn't have the ingenuity. Isn't that right?"

"Yes."

"You were just hoping. But there isn't any hope, is there?"

"No."

He flipped one hand dismissively. "Well, keep on going. We're not done yet."

Weeping, Patang topped the ridge and started downward, into a valley shaped like a deep bowl. Glassy scarps on all sides caught whatever infrared bounced off the floor and threw it back into the valley. The temperature readings on her visor leaped. It was at least fifty degrees hotter out there than anyplace she had ever been. Hot enough that prolonged exposure would incapacitate her suit? Maybe. But there was MacArthur behind her, and the only way forward was a shallow trough leading straight down. She had no alternative.

Midway down the slope, the trough deepened. Rock walls rose up to plunge Patang into shadow. Her suit's external temperature went down, though not as much as she would've liked. Then the way grew less steep and then it flattened out. The trough ended as a bright doorway between jagged rocks.

She stepped out into the open and looked across the valley.

The ground *dazzled*.

She walked out into it. She felt weightless. Her feet floated up beneath her and her hands rose of their own accord into the air. The muscle suit's arms rose too, like a ballerina's.

A network of cracks crazed the floor of the valley, each one blazing bright as the sun. Liquid metal was just oozing up out of the ground. She'd never seen anything like it.

Patang stomped on a puddle of metal, shattering it into droplets of sunlight and setting off warning alarms in her suit. For an instant she swayed with sleepiness. But she shook it off. She snapped a stick-probe from her tool rack and jabbed it into the stuff. It measured the metal's temperature and its resistance to pressure, ran a few baby calculations, and spat out a result.

Tin.

She looked up again. There were intersecting lines of molten tin everywhere. The pattern reminded her of her childhood on the Eastern Shore, of standing at the edge of a marsh, binoculars in hand, hoping for a harrier, with the silver gleam of sun on water almost painful to the eye. This looked just like a marsh, only with tin instead of water.

A tin marsh.

For an instant, wonder flickered to life within her. How could such a thing be? What complex set of geological conditions was responsible? All she could figure was that the noontide heat was involved. As it slowly sank into the rock, the tin below expanded and pushed its way up through the cracks. Or maybe it was the rocks that expanded, squeezing out the liquid tin. In either case the effect would be very small for any given volume. She couldn't imagine how much tin there must be down there for it to be forced to the surface like this. More than she'd ever dreamed they'd find.

"We're *rich*!" she whooped. She couldn't help it. All those months, all that misery, and here it was. The payoff they'd set out to discover, the one that she'd long ago given up all hope of finding.

LASER HAZARD

LASER HAZARD

LASER HAZARD

"No! Wait! Stop!" she cried. "You don't need to do this anymore. We found it! It's here!"

Turning, she saw McArthur's big suit lumber out of shadow. It was brute strength personified, all body and no head. "What are you talking about?" he said angrily. But Patang dared think he sounded almost sane. She dared hope she could reason with him.

"It's the big one, Mac!" She hadn't called him Mac in ages. "We've got the goddamned motherlode here. All you have to do is radio in the claim. It's all over, Mac! This time tomorrow, you're going to be holding a press conference about it."

For a moment MacArthur stood silent and irresolute. Then he said, "Maybe so. But I have to kill you first."

"You turn up without me, the Company's gonna have questions. They're gonna interrogate their suit. They're gonna run a mind-probe. No, MacArthur, you can't have both. You've got to choose: money or me."

LASER HAZARD

"Run, you bitch!" MacArthur howled. "Run like you've got a chance to live!"

She didn't move. "Think of it, MacArthur. A nice cold bath. They chill down the water with slabs of ice, and for a little extra they'll leave the ice in. You can hear it clink."

"Shut up."

"And ice cream!" she said fervently. "A thousand different flavors of ice cream. They've got it warehoused: sherbet, gelato, water ice . . . Oh, they know what a prospector likes, all right. Beer in big, frosty mugs. Vodka so cold it's almost a slurry."

"Shut the fuck up!"

"You've been straight with me. You gave me a half-hour head start, just like you promised, right? Not everybody would've done that. Now I'm gonna be straight with you. I'm going to lock my suit down." She powered off the arms and legs. It would take a good minute to get them online again. "So you don't have to worry about me getting away. I'm going to just stand here, motionless and helpless, while you think about it, all right?" Then, desperation forcing her all the way into honesty, "I was wrong, MacArthur. I mean it this time. I shouldn't have done those things. Accept my apology. You can rise above it. You're a rich man now."

MacArthur roared with rage.

LASER HAZARD

LASER HAZARD

LASER HAZARD

LASER HAZARD

"Walk, damn you!" he screamed. "Walk!"

LASER HAZARD

LASER HAZARD

LASER HAZARD

He wasn't coming any closer. And though he kept on firing, over and over, the bolts of lased light never hit her. It was baffling. She'd given up, she wasn't running, it wasn't even possible for her to run. So why didn't he just kill her? What was stopping him?

Revelation flooded Patang then, like sudden sunlight after a long winter. So simple! So obvious! She couldn't help laughing. "You *can't* shoot me!" she cried. "The suit won't *let* you!"

It was what the tech guys called "fossil software." Before the Company acquired the ability to insert their programs into human beings, they'd programmed their tools so they couldn't be used for sabotage. People, being inventive buggers, had found ways around that programming often enough to render it obsolete. But nobody had ever bothered to dig it out of the deep levels of the machinery's code. What would be the point?

She whooped and screamed. Her suit staggered in a jittery little dance of joy. "You can't kill me, MacArthur! You can't! You can't and you know it! I can just walk right past you, and all the way to the next station, and there's nothing you can do about it."

MacArthur began to cry.

* * *

The hopper came roaring down out of the white dazzle of the sky to burn a landing practically at their feet. They clambered wearily forward and let the pilot bolt their muscle suits to the hopper's strutwork. There wasn't cabin space for them and they didn't need it.

The pilot reclaimed his seat. After his first attempts at conversation had fallen flat, he'd said no more. He had hauled out prospectors before. He knew that small talk was useless.

With a crush of acceleration their suits could only partially cushion, the hopper took off. Only three hours to Port Ishtar. The hopper twisted and Patang could see Venus rushing dizzily by below her. She blanked out her visor so she didn't have to look at it.

Patang tested her suit. The multiplier motors had been powered down. She was immobile.

"Hey, Patang."

"Yeah?"

"You think I'm going to go to jail? For all the shit I did to you?"

"No, MacArthur. Rich people don't go to jail. They get therapy."

"That's good," he said. "Thank you for telling me that."

"*De nada*," she said without thinking. The jets rumbled under her back, making the suit vibrate. Two, three hours from now, they'd come down in Port Ishtar, stake their claims, collect their money, and never see each other again.

On impulse, she said, "Hey, MacArthur!"

"What?"

And for an instant she came *that close* to playing the Game one last time. Deviling him, just to hear his teeth grind. But . . .

"Nothing. Just—enjoy being rich, okay? I hope you have a good life."

"Yeah." MacArthur took a deep breath, and then let it go, as if he were releasing something painful, and said, "Yeah . . . you too."

And they soared. ○

NOT THIS EARTH FOREVER

I would not this earth forever; I
would not this one and mundane planet
bound and only ride, not I—my dreams demand
the leaping spire no people ever built.
I throat an unknown lyric to
a distant air that lingers from
some ancient lunar transit, as beyond—
constellatory steps across (my feet
do point to point upon)
the glinting bridge that spans
these stellar tides, and time—
are drawn my eye and every yearning
thought unerringly away. I rise and leave
a wormrife, woeful world behind—
I leave in mind
the earth that I would not.

—W. Gregory Stewart



Brian Stableford's recent novels include *The Wayward Muse* (Black Coat Press) and *Streaking* (PS Publishing). Black Coat Press has also published his translation of Paul Féval's *Salem Street*, one of the pioneering series of crime novels after which the press is named. His four hundred and sixty thousand-word reference book, *Science Fact and Fiction: An Encyclopedia*, will be out from Routledge in September. In his sumptuous cover story, he bids us bon voyage on our journey through the ether and into the age-old debate over . . .

THE PLURALITY OF WORLDS

Brian Stableford

The ethership stood on the launch platform at Greenwich, ready to blast off. The cabin set atop the massive rocket appeared tiny when viewed from the ground; the ladder by which the intrepid voyagers would reach it seemed exceedingly fragile.

Thomas Digges, the captain of the vessel's five-man crew, stood on the street at the edge of the platform in company with its principal architect, John Dee, and the Archbishop of Canterbury, John Foxe. Thomas was not looking up but looking down at the cobblestones. They had been scoured and swept in the early hours; he had never seen a city thoroughfare less likely to offend his boots.

"Your father would be immensely proud, had he lived to see this day," Dee said to the younger man. "This—more than the telescope, the laws of

planetary motion, or even the theory of affinity—is the ultimate fruition of his work.”

“He was but one half of a great alliance,” Thomas said, meeting his mentor’s eyes. “Had you not introduced him to Roger Bacon’s works, he might not have begun to toy with the telescope or applied himself to the munitions of war that laid the groundwork for the ethership. Your mathematical expertise was every bit as important as his in proving and improving the Copernican system, and without your fluctual algebra he would never have been able to develop the theory of affinity.”

“You should not forget the inspiration of the Almighty, my son,” Foxe put in, “nor the abundant financial support provided by our glorious queen.”

“No, indeed,” Thomas agreed, willingly. The queen had certainly been generous with her own funds as well as the nation’s, and her generosity had set an example that many of her courtiers had been anxious to emulate, competing among themselves to sponsor the New Learning. “Will the queen be here to witness the launch of her namesake?”

“Her carriage is en route as we speak,” Foxe assured him. “She would not miss it for the world. It means a great deal to her that England should be the first nation to send ambassadors to the moon.”

“We must beware of expecting too much of the expedition,” Dee observed, gravely. “The distance the ship will contrive to travel is entirely dependent on the conditions the crew will discover once they are beyond the upper limit of the air. We do not know whether ether is respirable—and if it is not, the crew will be forced to make a swift return to Earth. Preparations for a journey to the moon would then acquire a new dimension of complexity, more challenging in its way than the design of the ethership’s fuel-system.”

“That is a matter of God’s providence,” Foxe judged. “If the ether is breathable, then humankind clearly has God’s permission to travel between the worlds—but if it is not, the heavens are evidently out of bounds.”

Thomas frowned slightly, but said nothing. Foxe was a powerful influence in the court—powerful enough to have added a man of his own, John Field, to the “crew” of the *Queen Jane*. In reality, Thomas and Francis Drake were the only ones required—or able—to man the vessel’s controls. Edward de Vere and Walter Raleigh had petitioned the queen to be added to the company in the hope of impressing her with their boldness in quest of adventure. De Vere had a reputation as a playwright and Raleigh as a poet, but neither had any significant skill in mathematics, which put them at a definite disadvantage in a court where the greater part of everyday conversation was devoted to the progress of science. Foxe’s man, John Field, was no courtier—he was fervent enough in his Puritanism to make no secret of his contempt for the affectations of court life—but he was a man of refined conscience who would be able to report to the Archbishop on the potential theological consequences of any discoveries the expeditionaries might make.

Thomas would rather not have had Field aboard the ethership—but he would rather not have had de Vere and Raleigh aboard either, although Raleigh was always an amiable companion. Indeed, he would have been glad to go alone if he had not needed another pair of hands. Drake had an

interest in winning the queen's favor too—and had the advantage of maturity and previous accomplishment over his upstart competitors, being only three years younger than the queen—but he was a good calculator and a cool man under pressure.

"Speak of the Devil!" Thomas murmured, his voice far too slight to carry to the Archbishop's ever-vigilant ear. Drake was emerging from the Black Bear Inn, his arms linked with those of de Vere and Raleigh; the three of them as merry as men could be who had been forbidden ale for breakfast. A fourth man, who was walking three steps behind them, was as disapproving as they were cheerful; John Field, Puritan firebrand, had a fine talent for disapproval and its display.

The three courtiers were finely clad and their beards were neatly trimmed. Drake was the tallest as well as the oldest, but de Vere—ten years Drake's junior—was the handsomest of the three. Raleigh, two years younger than de Vere at twenty-five, was not conventionally fair of face, but he had a certain dash in his attitude that had already made an impression on the queen, if Cripplegate rumor could be trusted. In reality, de Vere was probably the more reckless of the two—he was still suffering the bad reputation of having once had an unarmed man "commit suicide by running on to his sword"—but the queen was said to prefer a man who maintained a flamboyant attitude, while behaving politely, to one whose attitude was polite while his behavior resembled a loose cannon.

"The queen will be here in a matter of minutes!" Drake announced. "I saw her carriage from the attic with the aid of one of Tom's telescopes, advancing from Rotherhithe at the gallop. Perfect timing, as always."

Digges bowed, as he murmured "Sir Francis, milord, Sir Walter, Mr. Field." Although he was the captain of the ethership, three of his crewmen outranked him by birth—de Vere most extravagantly of all, having inherited the title of Earl of Oxford while still a boy. It was the three aristocrats who returned his bow most graciously, however; Field seemed to think such polite gestures akin to church vestments, and was a dedicated minimalist in their expression.

"Her majesty is doubtless anxious to see Master Dee again," de Vere said. "While he has been busy here, the Tower has been deprived of its fireworks and its horoscopes alike."

Dee bowed in acknowledgement, although the remark had not been intended as a compliment. Field took up a position beside the Archbishop, making a row of three Johns in opposition to the three gallants. Thomas felt uneasily suspended between the two ranks. "If her majesty is missing Master Dee," he dared to say, "it is more likely that she feels the need of her lessons in mathematics." In 1568, when Dee had presented the queen with a copy of his *Propadeumata Aphoristica*, the queen had gladly accepted his offer to give her lessons in mathematics to help her understand it. She had been a champion of natural philosophy since she had come to the throne in 1553—even more so since she had broken free of Northumberland machinations following her husband's assassination by Elizabethans in 1558—but her generosity had increased in proportion to her comprehension.

Foxe, who seemed even less appreciative of Thomas's remark than de

Vere, might well have made some remark about Bible studies, but he was distracted by a buzz in the crowd that had gathered along the quay. They too had caught sight of the queen's coach—or its escort, at least.

"Batman's here, I see," Dee observed. Stephen Batman, chaplain to the Master of Corpus Christi, was Dee's greatest rival as a book-collector, although his interest in the manuscripts he accumulated was more antiquarian than utilitarian.

"Who's that boy beside him?" Thomas asked.

"That's one of Nick Bacon's sons," Drake answered. "Young Francis—a prodigy, they say, likely to eclipse Master Dee himself, in time."

"Not if the *Queen Jane* makes a successful ascent into the ether," Thomas opined. "Whether it is able to go on to the moon or not, that achievement will not be eclipsed for a hundred years . . . and Master Dee is its architect." He added the last remark lest Drake—or anyone else—thought that he was blowing his own trumpet.

"Here she comes!" Raleigh crowed, immediately joining in with the tumultuous cheering. Everyone else did likewise, in slightly less Stentorian tones—even John Field.

Queen Jane's carriage, pulled by four black horses, rattled south-eastward along the Thames shore behind the vanguard of a company of cavalry, whose second cohort was bringing up the rear. Their scarlet coats were ablaze in the morning sun, while their polished sabers reflected random rays of dazzling light.

Foxe and Dee hurried forward to greet the monarch, while de Vere checked his doublet and hose and Raleigh reached reflexively for the ornamental hilt of the sword that he would normally have been wearing. Like his breakfast ale, it had been forbidden.

The queen was only a few months short of her fortieth birthday, but she looked radiant as well as regal. Thomas blushed at the sight of her, as he always did, and stumbled as Dee hurried him forward in order to present him to her.

"Your majesty," the Master said. "Leonard Digges's son shall make England proud this day."

Queen Jane extended her hand for Thomas to kiss. "The captain will make us very proud indeed," she said, "for there is nothing England admires more than courage—and the navigation of the heavens will require courage unparalleled."

Thomas stammered his thanks. The cavalry had formed a protective cordon around the party, although it was more a show of discipline than anxiety; the Elizabethans were a spent force nowadays, and no agent of Spain could have gotten within five miles of Greenwich on a day like this. Drake, de Vere, and Raleigh took the opportunity to form a cordon of their own, vying for the queen's attention with effusive flatteries. For once, Thomas felt a pang of sympathy for the awkward and hesitant Field.

"Time is pressing, lads," he said, when they had played their parts sufficiently. "We'd best be mounting the ladder." Without any more fuss than that he set off for the ethership, knowing that the others would fall into line behind him. He left it to them to wave to the crowd, while he contented himself with a last glance in the direction of John Dee, the greatest man of

science the world had ever produced—or, at least, the man whose reputation to that effect was about to be subjected to the ultimate proof.

The first and more unexpected agony was the sound of the rocket's ignition. Thomas had known that it would be louder than any sound he had experienced before, and had suspected that its pressure might be oppressive, but he had not anticipated the seeming fury with which it pounded his eardrums, drowning out all other sensation and thought.

Then affinity took hold of him—or, more accurately, the rising ethership slammed into his back, while the affinity that bound him to the Earth fought against the force of the rocket's explosive levitation, trying with all its might to hold him down. He had known that this sensation, too, would be bad, having experienced similar phenomena during the test launches. Those vessels had only ascended into the atmosphere, though, no higher than the summit of a mountain. His body had suffered no lingering ill-effects at all—but this pressure was twice as powerful, and he felt that it was crushing him.

Thomas heard a gasp as Field tried and failed to scream; the clergyman was the only crew member who had not taken any part in the testing program. The scientist could imagine the thought that must be possessing the Puritan's brain: if God had made the affinity between man and Earth so strong, how could he possibly intend that men should ever attempt to break the bond? But the pressure passed, to be gradually replaced by a very different sensation: that of weightlessness. Thomas had a fine mathematical brain—near equal to his father's, Dee said—and he had long applied his methods to the artillerist's art of ballistics; he constructed a picture in his mind of the trajectory of the rocket as it curved away from the ground it had left behind, aiming for a circular orbit about its world.

Only a handful of men, as yet, had circumnavigated the globe in ships, and none of them was an Englishman—although Drake had sworn that if he had not been invited to take his place on the *Queen Jane* he would have made the attempt in the *Pelican*. Now, five Englishmen were about to circle the world not once but several times, in a matter of hours rather than months.

"Make sure your tethers are secure, lads," he said—for Field's benefit rather than that of his experienced crewmen. "Cleave to your couches if you can, and take care not to release anything into the cabin."

"Aye aye, sir," said de Vere, with a slight hint of mockery—but Thomas ignored him.

"Ready, Sir Francis?" he said.

"Aye, Tom," was Drake's entirely sincere reply. Drake had to supervise the course of the ethership while Thomas deployed the sampling bottles mounted to collect the pure ether that would soon be surrounding the ship, using mechanical arms to maneuver them into double-doored lockers. From there, if all went well, they could be brought inside without breaching the integrity of the hull. Thomas worked unhurriedly, but not without urgency; Drake was equally concentrated on his work.

Raleigh was closest to a porthole; he was looking out with avid interest, watching the curve of the globe's horizon.

"I can't see England at all, curse the clouds!" he said, "but I can see a landmass that must be Africa, and more ocean than I ever hoped to see in a lifetime. The mystery of the Austral continent will soon be solved—or perhaps we'll see Dante's purgatory, towering above the ocean hemisphere in solitary splendor."

"Papist nonsense," muttered Field, who sounded as if he had spent a stint in Purgatory himself.

"Thank the Lord we have not collided with one of the Romanists' crystal spheres," Raleigh said, mischievously. "That would have been cause enough for protest."

"Nor can I see Plato's spindle of necessity," de Vere put in, craning his neck to see through another porthole. "Does anyone hear the sirens intoning the music of the spheres?"

"We're not as high as all that," Thomas said, without breaking his concentration. "The planets are a great deal further away than the moon, which is still a long way off. The first of the Classic philosophers' questions to be settled is the nature of space. If the void theorists are right, ours will have to be a brief excursion."

"Now there," observed de Vere, "Puritans and Papists are in rare accord. There's not an atomist in either orthodox company—they're plenarists all, save for the occasional rogue. Remind me, please, Reverend Field: is it still orthodox to believe that the ether marking the extent of space is the breath of God?" Whatever his faults, de Vere had been well-tutored in Classics by Arthur Golding; he knew that the notion of gods breathing ether as humans breathed air was a pagan idea, of which Christian theology was bound to disapprove in spite of the Vatican's approval of select-
ed Aristotelian ideas.

"It is not a question," Field retorted, icily, "on which the Good Book has any pronouncement to make." His tone did not seek to conceal his awareness that de Vere was suspected of Catholic sympathies, nor the fact that he was Foxe's eyes and ears, alert for any advantageous whiff of heresy.

Even so, Raleigh—whom similar suspicion deemed to have atheistic tendencies—felt sufficiently liberated to say: "Was it God's negligence, do you suppose, or that of his amanuensis Moses, that left the point unclarified? It would be a great convenience to us, would it not, if the statutes of Leviticus had pronounced upon the permissibility or abomination of ether-breathing?"

"Hold your blasphemous tongue, sir!" the clergyman exclaimed. "God revealed to man what man had need to know."

Thomas, who was busy capturing a bottle of ether within the transfer-hold, found time to think that God had been a trifle vague when it came to the necessities of mathematics, navigation, and engineering, let alone the still-impregnable mysteries of physiology. "Got it!" he said, as his manipulative endeavors bore fruit. "The Master's contraption worked beautifully."

"Did we decide who was to be first to inhale from the bottle?" de Vere asked, with a mischievous glance in Field's direction. "Should we draw lots, or it is a clergyman's prerogative to breathe the intangible sustenance of God?"

"If a lungful of void were likely to strike a man dead on the spot," Raleigh

said, "it might be best to give the task to a man of faith, under God's dutiful protection."

"Easy, lads," Thomas said, as his nervous fingers groped at the interior catch of the hold. "It's not faith in God that's required here, but faith in the plenum, and the life-supporting virtue of the ether. Even if I lacked such faith, though, I doubt that I'd be struck dead by a single draught of nothingness."

"You might be in more danger of drunkenness," said Drake. "If ether is vaporous nectar, as some say, it might play tricks with your senses."

"Aye," Thomas agreed, extracting the sealed bottle from its cradle, "so it might. But as my father used to say: let's try it and see." He closed his mouth and set the bottle to his nose, released the stopper and breathed deep. He knew, even before his lungs responded to the intake, that the void theorists were incorrect; had the space beyond the atmosphere been empty, and the Earth's air aggregated about it by affinity alone, he would not even have been able to remove the stopper; pressure would have held it firmly in place. The plenarists were correct, it seemed; there was no void, and space was full—but full of what?

Had God really intended humankind to be forever Earthbound, ether might have been a poison, and air a protective insulation against it—but Thomas found that it was not. Nor was it a deliriant, as Drake had hypothesized. He was mildly disappointed to discover that breathing ether was very much like breathing air. "It has no discernible odor," he declared, pensively, "and it's not cold. That's odd, I think, for mountain air is as cold as it is thin. This is a little thin, I suppose, but so far as I can tell, it shares the virtues of the. . ."

He would have said "air we usually breathe" had he not been seized by a sudden fit of dizziness. Recumbent on his couch, he was in no danger of fainting, but he could not speak while his senses were reeling.

"What is it, Tom?" Drake asked, anxiously. He was not the only man present who was Thomas's senior, but Field was only a year older and Drake was a full five; Drake was the only one with the remotest pretension to serve as a father figure.

"Nothing to do with the ether," Thomas judged, perhaps a trifle too hastily. "The effect of moving while weightless, I think. A momentary vertigo."

"There really is an Austral continent," Raleigh informed them. "Or a sizeable island, at least. Can we claim it in the name of Queen Jane from up here, do you suppose, or must we direct a privateer to plant a banner on its shore when we land?" His voice faltered very slightly as he pronounced the last word; they all knew that landing their tiny craft would be every bit as difficult and dangerous as freeing it from the Earth's affinity.

"Never mind the Austral continent," said de Vere. "Can we—do we—press on to the moon?"

"There's more than the breathability of the ether to be taken into account on that score, Ned," Raleigh told him, bidding for the intellectual high ground in their private conflict. "There's the fuel, and the maneuverability of the ship to test. We've time in hand. Will they be able to see us in England with the aid of one of your father's telescopes, Tom, when we've overflowed the Americas and crossed the Atlantic?"

"We won't pass over England on the second round trip," Thomas told him. "They might see us in Rome, though. That'll make the pope bite his tongue, won't it, Mr. Field?"

"The pope refuses to look through a telescope," Field replied, less stiffly than Thomas had expected, "for fear of what he might see."

"There's nothing in the moons of Jupiter to frighten a pious man," Raleigh observed, drily, "and infinite space is no more visible than finite space."

"The pope has no need to deny the infinity of space," de Vere put in, striking back at Raleigh's presumption of superior knowledgeability. "It's not a Copernican doctrine. Nicholas of Cusa proposed it, on the grounds that God's creative power could not be limited. He argued for the plurality of worlds on exactly the same basis."

"You're a true scholar, Ned," Drake said, amiably. "Where do you stand on the dispute as to whether the inhabitants of the other worlds must be identical to ourselves, being made in the same divine image, or whether they must be infinitely various in form and nature, so as not to limit the creativity of the divine imagination?"

"Some might be giants and some tiny," de Vere observed, "in proportion to the sizes of their worlds."

Raleigh laughed. "But in which proportion, Ned?" he asked. "Will the Selenites be dwarfs because their world is smaller than ours, or giants, because the force of affinity does not stunt their growth?"

"The fuel stores are still in place and the controls check out," Drake reported. "No leaks at all—we have fuel enough to take us to the moon and back, and the means to control its deployment."

"And the attitude of the ship can be adjusted with appropriate precision," Thomas agreed. "Who'd like to sniff the second bottle of ether when I've brought it through?"

"I will," Raleigh said. "No offense, Tom, but you breathe like a mathematician. I've a better nose than you; if ether has a bouquet, however subtle, I'll feel it on my palate."

"Fine," said Thomas, clicking the catch on the second hold—but as soon as he took hold of the bottle, he realized that Master Dee's "contraption" had not worked as well on the second occasion as it had on the first. The outer hatch of the lock had not closed; there was now a gap in the hull the size of a man's forearm.

"Don't panic, lads," he was quick to say. "If there were a void outside, we'd be in trouble, but so long as the pressure of the ether's not so very different from the pressure of the air in the cabin, there won't be much exchange." He fumbled as he tried to secure the inner hatch, however. The ether that Thomas had breathed had been clear, empty of any other apparent substance, but the ether that streamed in through the temporary opening in the hull was cloudy, as if woodsmoke were adrift in it. This was no mere smoke or mist, however, for it was formed into an approximate shape—Thomas could not decide whether it was more like a moth or an artist's conception of an angel—and it moved as if with purpose, descending upon Thomas's face like a veil.

"Look out, Tom!" Raleigh cried—but the warning was futile.

Thomas tried to hold his breath, but he was unprepared. Fear made him inhale sharply—and the invader took the opportunity to wriggle up his nose like an eel burrowing into soft sand. Thomas felt its ghostly presence pass, slick but not cold. He expected it to move down his trachea, or perhaps his esophagus, but instead it seemed to move into the space of his skull, diffusing into the nooks and crannies of his brain.

This time, the *Queen Jane's* captain did sense a sweet and cloying odor—and when the vertigo took hold of him again, it did not relent. Supine as he was on his couch, he lost consciousness almost immediately.

As Thomas awoke, the dream in which he had been languishing fled from consciousness, leaving him cast way in a sea of uncertainty. He did not know where he was, and could not remember where he ought to be. He opened his eyes convulsively, and looked wildly about, in spite of the light that flooded his eyes and dazzled him. He knew that something was wrong.

He remembered, belatedly, that he ought to be weightless, tethered to his couch in the cabin of the *Queen Jane*—but he was not. Nor, however, was he back on Earth. He was in the grip of affinity, but he felt lighter by far than he ever had on Earth.

A rough hand gripped his shoulder and steadied him. "Tom!" said the voice of Sir Francis Drake. "Thank God! I feared that you'd never wake up. Are you all right?"

"Aye," said Tom, thickly, rubbing his eyes to clear a certain stickiness from his eyelids. "What did I swallow?"

"As to that, I don't know," Drake told him. "Nor do I know whether it's still inside you—but I've seen creatures stranger by far than that one since you fell unconscious, on my honor. Field missed the show too, having fainted in alarm, but Walt and Ned were awake throughout, so I knew that I wasn't dreaming."

"Where are they?" Thomas asked—meaning Raleigh and de Vere, although Field was not there either.

"I don't know," Drake said. "Probably in a similar prison. Our captors might have recognized the two of us as the senior crewmen—or as the oldest of our company—but I doubt it." Thomas observed that Drake's face was scratched and that many of the scratches were somewhat inflamed.

The cell in which Thomas and Drake were apparently imprisoned was reasonably capacious, but all its alcoves were small and set above head-height, making it difficult to make out what they contained. Thomas looked down instead, to see that the "bed" on which he lay was a protuberance in the floor, not a wooden platform on legs. The floor, like the walls and ceiling, seemed to be composed of an organic substance akin to wood or tortoiseshell, but it seemed clean enough—much cleaner than the vast majority of England's household floors. The floor was grey, but the colors and textures of the walls were very various, and the radiance that lit the space came from silvery ribbons swirling across the ceiling rather than any kind of flame. The doorway was oval in shape; there was no obvious catch securing the door, which might easily have been mistaken for a stopper in the neck of a jar.

"What stranger creatures have you seen?" Thomas asked, belatedly.

"Lunar moths with man-sized bodies and vast wings," Drake said, tersely. "Grasshoppers walking on their hind legs, and ants too, somewhat taller than a man. And slugs the size of the elephants in the Tower menagerie, with castles of oystershell. I thought them brutally violent at first, for they're very free with the attentions of their various antennae, limbs and slimy palps, but I don't think they meant to injure us." Thomas reached up to touch his own face, which was tender and itchy. His hands were no better, and the swelling made it difficult to flex his fingers.

"Are we on the moon, then?" Thomas asked, in frank bewilderment.

"In the moon," Drake corrected him. "They flew us here, ethership and all, by the power of their multifarious wings, wrapped in a web of what I'd be tempted to call spidersilk were it not that spiders are one of the few creepy-crawlies I've not seen inflated to magnanimous dimensions hereabouts."

"I've seen signs of life and movement while studying the moon in my father's best peeping-glass," Thomas said, in a low voice, "but I was never entirely sure that they were not a trick of the lens or the mind's eye."

"Master Dee's hatches are a poor design," Drake opined, "by comparison with the craters that serve as doorways to the moon—but the giants are not as large as all that. You couldn't see them with a spy-glass any more than we could see elephants strolling in the African savannah were we to turn a telescope on the Earth from the lunar surface."

"There were ants, you say?"

"Things somewhat reminiscent of ants—not to mention moths, bugs, beetles, and a hundred more types for which I cannot improvise names, all living in a single tempestuous throng. They collaborated in our capture, and . . ."

He broke off as the door opened. It did not swing on a hinge; the aperture dilated.

Thomas understood immediately what point Drake was trying to make. The four individuals who came through the door were all insectile, but they were analogues of very different Earthly species. They all walked upright on their hindmost legs, and their heads were equally bizarre, but their bodies were very different in color, texture, and equipment. Two were winged, one like a butterfly and one like a dragonfly. Two were brightly colored, one striped like a wasp and the other spotted like a ladybird. Two were stout, two slender. Two were clutching objects in the "hands" attached to their intermediary limbs. Two were carrying implements of some kind in their forelimbs. All of them, however, hurried forward with no regard whatsoever for their captives' personal space, and began *touching* them, with all manner of appendages.

Thomas fell back upon the bed, overcome by horror. He wanted to scream, but dared not open his mouth lest something even nastier than the ether-creature slip inside him. He closed his eyes, praying for the molestation to stop.

"Be still," said a voice, pronouncing the words inside his head like one of his own vocalized thoughts. "Be patient. If you will relax, and let me use your limbs, I can communicate with at least one of them—I can explain the irritation in our flesh, and demand an antidote."

Thomas inferred at first that one of the monstrous insects must be projecting the words into his head by some mysterious process of thought-transference—but then he remembered that there was already an alien presence within his skull: an etheric ghost that appeared to have dissolved its fragile substance in the flesh of his brain.

"What are you?" he demanded silently. He had made no conscious effort to relax, as he had been asked to, but he did not resist when he felt his hands moving of their own accord.

The insectile monsters seemed more startled by this contact than he had been by theirs. They withdrew their various feelers, and waited while his fingers danced upon the head of one of their number.

Thomas had to collaborate with his intimate invader, rising unsteadily to his feet in order to continue the tactile conversation more effectively. It was an authentic conversation now—the insect addressed by his mysterious passenger's gestures was making its reply, in terms of rapid strokes of its antennae—but Thomas felt the irritation and inflammation in his flesh die down.

"I am explaining your origin," his invader said. "Your nature too, although that is more difficult. I can understand why you think of me as an invader, but I mean you no harm any more than the members of the True Civilization do. It might help us both if you were to try to think of me as a guest."

"What's happening, Tom?" Drake asked. "What on Earth are you doing?"

"We're not on Earth," Tom retorted, abandoning the internal dialogue to speak aloud, "and it isn't me who's doing what I'm doing. It's the ether-creature that wormed its way into me when the ship leaked. Somehow it knows how to communicate with this creature. Perhaps it has traveled extensively in the minds of other creatures."

"Good guess, mine host," said the creature within him, silently. "You're an exceptional creature, Thomas Digges, to have such trust in your own sanity. It often requires months or years to establish a rapport—but yours is a dreaming species, I suppose. That makes a difference—few species have that particular gift, or curse."

Drake had fallen silent, direly puzzled. The insects, however, were frenetically busy in communication among themselves. Touch was only one of the senses they employed; they could not talk as humans talked but they clicked and chattered, warbled and hummed. They spoke with their limbs and their wings, and various other kinds of apparatus that Thomas could not discern.

"I think that I have made the situation clear," Thomas's internal informant said. "I have asked to be taken to one of the queens' chambers, since this world has no fleshcore, where we might converse with philosophers closer to the heart of the True Civilization. They will understand your nature, having mechanical analogues of your kind, even if they have not been studying you carefully from afar."

"I have no idea what you are trying to tell me," Thomas replied, silently. "All this is meaningless to me."

"Be patient," the silent voice said. "I will try to explain when I have the opportunity."

"If you and I are made in God's image, Tom," Drake said, softly. "What manner of creator made creatures like these?"

It was not like Drake to speculate in such a fashion, but Thomas could understand his confusion very well. Preoccupied with his internal dialogue, however, and disturbed by the incessant actions of his unbidden hands, he did not reply.

Drake did not seem to be offended by his rudeness. "Perhaps de Vere was right," the crewman continued, "but if these are merely insects like those of Earth, what giants the men of the moon must be!"

Thomas knew that there was nothing mere about *these* insects. They had been investigating him with manifest intelligence—and still were, aided now by the voice of his invader . . . his guest. Like humans, they were sapient; like humans, they were curious. The ether-creature called theirs the True Civilization—and why should it not, given that they could fly through the ether between the worlds, to capture stray etherships and interrogate their crews?

When the insects crowding around his bed began to deploy the bulkier objects they were carrying he flinched and shied away, but they still did not appear to mean him any harm. He could not tell what was happening when the objects were pointed in his direction, but none of the monsters was touching him any longer, directly or indirectly. His own hands had been withdrawn from the face they had been fondling so strangely.

Thomas found time to say aloud: "All's well, Francis. I don't understand what's happening yet, but they don't mean to do us any injury."

Drake was touching his face and inspecting the backs of his hands. "That confounded itching's stopped," he observed. "Have they administered some antidote?"

"Yes," Thomas told him. "They did not realize that we had been stung. The ether-creature seems to know a great deal more about what is happening here, and what is relevant to our welfare, than we do. If it has not visited the surface of the Earth, it must know others of its kind that have."

Drake actually struck a pose, then, and bowed gracefully to the four attentive monsters. "On behalf of Queen Jane of England," he said, "I greet you, noble sirs. Shall we be friends, then? You don't have the look of Spaniards about you, and God forbid that you might be Elizabethans . . . or the spirits of the dead, come to that. Was it Plutarch, Thomas, who first declared the moon to be a world akin to the Earth, where the souls of the dead reside?"

"Plutarch it was," Thomas confirmed, "but I don't think his soul is here before us, gathering material for more *Lives*."

"Nor I," Drake agreed. "Can you believe that Raleigh and de Vere could be as brave as we are being, under similar inspection? Not that it matters—by the time they tell the tale to the queen, they'll have fought and vanquished whole Selenite armies, if Field can't keep them honest—and we'll never convince them that we had the bravado to act as we are while subject to such scrutiny. Please assure me that they're not merely deciding the best way to cook and season us."

The ether-creature seemed to know that Drake was joking, and did not trouble to reassure Thomas against this ominous possibility. Nor, howev-

er, did it forewarn Thomas that he was about to be seized in the upper arms of one of the unburdened creatures, and very thoroughly palpated, although it did say "Patience, Thomas!" once the assault began. Thomas felt his hands making some sort of reply, although he had no idea what it was—but he had a strange impression, as the creature withdrew again, that it was even more repulsed by the texture of his flesh than he was by the horror of the grip and the probing feelers.

"The neo-Platonists and Aristotelian diehards have a saying," Drake muttered. "*As above, so below*—but this seems to me to be a very different world from the one we know. Men of that sort are mostly monists, though, who think that the moon is a mere lamp planted in the skies by providence to ameliorate the darkness of night in suitably teasing fashion, and that the stars are candles disposed to foretell our futures. Master Dee is no monist, is he—despite that he wrote a book called *Monas Hieroglyphica*?"

"He was converted to pluralism thereafter," Thomas said. "*Propadeumata Aphoristica* is his definitive statement. He is committed to the infinity of space and of worlds—and when I tell him of our adventure, he will also be committed to the infinite variety of form and virtue. These are intelligent beings, Francis—including the thing inside me—and I'm praying hard that they might be more virtuous in their treatment of fellow intelligent beings than the great majority of men. *Take care!*"

It was not he that had pronounced the final words, although they had been spoken aloud. Thomas was abruptly snatched from his bed, and Drake was seized.

"Have no fear!" said Thomas's interior voice, silent again but still voluble. "They are doing as I have asked, and are taking us to a visitor from the galactic core. With luck, he will order your release."

Thomas and Sir Francis Drake were dragged from the room then, but they were both being held quite gently. They were no worse than lightly bruised as they were hustled along one winding corridor after another, through an interminable labyrinth. Thomas's impression was that they were going deeper into the bowels of the moon, but he could not be sure.

"Where are they taking us?" Drake shouted back to him, his tall but slender captor having drawn some twelve or fifteen yards ahead of Thomas's stouter guardian.

"To a queen's chamber, I believe," Thomas replied, retaking control of his own vocal cords.

"I have heard that ants have queens," Drake said. "None as pretty as my darling Jane, though."

"Is she your darling?" Thomas called back, although he could feel the ether-creature's impatience to revert to silent conversation.

"She will be," Drake said, "if I get out of this alive with the means to return to Earth—always provided that I tell my tale before Ned and Walt tell theirs. There's naught like a little gooseflesh to animate affection, and I think I have the means now to make her majesty's flesh crawl prodigiously."

Thomas was ashamed to feel a sudden pang of resentment at the observation that Drake—who was, after all, five years his senior and no great beauty—had not thought to include him with de Vere and Raleigh

in the list of his rivals for the queen's affection. Such was the burden of humble birth, and perhaps the myth of the mathematician's disdain for common passion.

Thomas now had the opportunity to see for himself that the giant inhabitants of the moon did not all resemble insects, although its insectile population was exceedingly various; there were, as Drake had briefly mentioned, creatures like slugs the size of elephants, with shells on their backs like mahouts' turrets, and many other creatures shelled like lobsters, whelks, or barnacles. There were legions of chimeras clad in what Thomas could not help likening to Medieval suits of armor designed for the protection of entities with far too many limbs.

"Why, this must be a busy port or a great capital," Thomas said, though not aloud. "A cultural crossroads where many races commingle and interact. If the moon is hollow throughout, honeycombed with tunnels, how far must its pathways extend, and how shall its hosts be numbered?"

"Very good, Thomas," his invader said. "I'm assisting you as best I can, but you've a naturally calm mind, which makes it a great deal easier. Thank God you have no relevant phobias—they'd be a lot less easy to counter than your allergies."

"You talk a deal of nonsense," Thomas said, "for someone using a borrowed tongue."

"Aye," the creature replied, "but I'll make sense of it for you if I can. I must, for we've work to do here, now that the True Civilization is aware of your new capability. They must have studied you, I dare say, but they could not have thought you capable of building an ethership for another four hundred years—and study conducted at a distance is always calmer than a close confrontation, where differences stand out that distinguish you from burrowers and ethereals alike. We must convince an influential philosopher that you are harmless still, and likely to remain so."

"Have you a name, guest?" Thomas demanded. "I feel that I am at every possible disadvantage here. Or will you name yourself Legion, and make things even worse?"

"I am no possessive demon," the creature assured him. "I shall be as polite a guest as circumstances permit, and will take my leave before I overstay the necessity of my visit. You may call me Lumen."

"As in light, or cavity?" Thomas retorted.

"A little of both. We are chimerical creatures by nature, and our aims are syncretic. I cannot bind your race to the True Civilization at present, but I must persuade someone close to its heart that humankind might one day be so bound—if I fail, the consequences might be catastrophic."

Thomas wanted to demand further clarification of this remarkable statement, but he did not have time. They had just arrived in a much larger cavern: a vast and crowded amphitheater, with terraces arranged in multitudinous circles about a central core.

"I told you so," Drake shouted. It took Thomas several seconds to realize that his friend was referring to his assertion that an insect queen could never be as pretty as his darling Jane. Thomas had to agree, as he looked upon a vast individual, who was surely the queen of a hive, although her resemblance to an ant or bee was no greater than her resemblance to a

moth or a centipede. Her ugliness in human eyes was spectacular in its extremity. She was laying eggs at the rate of one every ninety seconds, which acolytes carried away into tunnel-mouths dotting the rim of the central arena.

It was not the queen to whom the two prisoners were taken, though—it was to a group of individuals twenty-five or thirty strong, situated no closer to her head than her nether end, who were in conference in one of the inner ranks of the array of terraces. The majority were more mothlike than any other species Thomas had yet seen, conspicuously furry, with multifaceted eyes each larger than a human head; the minority were very varied indeed.

"Now," said Thomas's uninvited guest, "you must let me speak. The future of your nation, and perhaps your world, may depend on it."

Thomas pulled himself together once he had been released, and tried to look one of the mothlike creatures squarely in the eyes, although the wide spacing of the compound aggregations made it difficult. Whether it was he or his passenger who had identified the significant member of the group Thomas could not tell. Drake was standing close beside him, but said nothing: his eyes were on Thomas, his captain.

"Very well, Sir Lumen," Thomas said, silently, since his guest seemed to be waiting for explicit permission to proceed. "Speak—but tell me, I beg you, what you are saying and what replies you receive."

His hands immediately became active, as did the multiple forelimbs of the lepidopteran monster.

"I am delighted to have the privilege of communicating with one who has come so far through the universal web," the voice within him said, evidently translating what the hands it was guiding were attempting to convey in a very different language. "May I address you as Aristocles?"

Then the internal voice changed its timbre entirely, to signify that it was translating a different gestural sequence. "You may," the monster replied. "I suppose that it is a privilege of sorts for us, also, to converse with an ethereal in such a strange guise. We had not thought that such as you could have an interest in a being of this sort."

Thomas, who still had control of some of his motor functions, tried to keep his eyes on the monster's frightful face, although a certain instinctive repulsion added to the temptation to glance sideways to see what other creatures were passing along the terraces and to hazard guesses at what multifarious kinds of business they might be transacting.

"We are interested in all beings, whether they are ethereal, vaporous, liquid, or solid," Lumen stated. "Nor do we discriminate between endoskeletal and exoskeletal formations. We are as intrigued by anomaly as you are."

"We stand corrected," Aristocles replied. "Your kind does not often descend to planetary surfaces, though—do you not find the thick and turbulent atmosphere of this world's neighbor as inhospitable as we do?"

"We can move in air as in ether," Lumen said. "It is uncomfortable, but it does no lasting damage if we do not linger long."

"And the same is true of these bizarre creatures, I assume," Aristocles

replied. "It will do you no lasting damage to dwell within the bonebag, provided that you do not linger long—but they cannot be as welcoming, in their capacity as hosts, as we soft-centered creatures are."

The ether-creature made no reply to that teasing statement. Instead, it said: "May I introduce Thomas Digges, esquire, in the service of Her Majesty Queen Jane of England? His companion is Sir Francis Drake. May I also ask what has become of the other three humans who were captured with them?"

"You may," the mothlike creature replied, its politeness wholly feigned if the suggestive timbre of its mimic could be trusted. "Thomas Digges' companions are unharmed, although one of them is direly fearful. He appears to believe that we and the Selenites are incarnations of pure evil."

"I am glad that you understand these creatures well enough to be able to deduce that," Lumen said—sarcastically, presuming the tone of the translation to be accurate. "John Field has a narrow opinion of what it means to be made in God's image. He does not understand there are innumerable worlds scattered throughout the cosmos which exact different adaptations on their surface-dwellers and burrowers alike, and he thinks of images in purely formal terms."

Thomas blinked as some drifting miasma stung his eyes, and he felt his sinuses grow itchy moist in response to some peculiar scent. He sniffed, as surreptitiously as he could—although it was obvious, on the basis of the merest glance about that astonishing arena, that few of the individuals gathered here could have any objection at all to the extrusion of surplus mucus.

"There are those even in the bosom of the True Civilization who have narrow opinions as to the will and whims of God," Aristocles admitted. "If there is disagreement even within the ultimate harmony, what can we expect without? A race such as this must have a very peculiar notion indeed of the image in which they have been forged. With your permission, of course, we should like to take these specimens to the Center, so that they may be savored by a mature fleshcore."

"Their flesh has been more than adequately sampled, thanks to the assiduousness of your gatherers," Lumen replied. "As to their consciousness, I know it more intimately than you can, given the limited means you can apply to the task. Were you to return the five humans to the surface of their world—or let them make their own way home in their ethership—I would be willing to go with you to the Center, to enlighten the community of Great Fleshcores to the limit of their desire."

"We thank you for your consideration," said his adversary—Thomas was very certain that there was a powerful adversarial component to this exchange—"but ethereals cannot fully comprehend the transactions of more palpable beings. There is no substitute for *tangible* evidence. We must insist on taking the humans to the Center—but we are, of course, perfectly willing to bring them back again afterward, by means of the ninth-dimensional transmitter. There would be no inconvenience to those concerned."

"Bargain with him," Thomas said, hoping that the interruption would not break his guest's concentration. "I'll go, if my four companions are set free."

"I take your point about there being no substitute for tangible evidence," Lumen said, immediately. "To take all five humans on such a difficult journey would, however, be superfluous. One would be sufficient. The others are of no use, this one being the only one that can communicate with you effectively. Perhaps the others could wait here, until this one returns, and then they could all be returned safely to the surface of their world."

"We disagree," Aristocles said. "Your presence certainly adds to this one's versatility in communication, but much has been learned by palpation of all five and comparison of the results. If our poor feelers can detect interesting differences, think what a mature Fleshcore might discover. As we have said, we are prepared to bring the five creatures back here when we are done with them. If it is their desire to risk a return trip in their ridiculous vessel, we shall not hinder them, even though we would not be optimistic about their prospects of success."

"Have you noticed, Thomas, that we are the cynosure of all eyes in this exotic court?" Drake put in, evidently feeling that the time had come to intervene in the orgy of palpation.

Thomas spared a momentary glance for a mixed group of bug-like creatures some thirty feet away, who did indeed seem to be using their own intercourse merely as a pretext for studying the two humans, their eyes somehow suggestive of a fervent desire to supplement their curiosity through the medium of touch. If they were embarrassed by his sudden attention, they gave no sign that human senses could detect.

How they must envy this Aristocles! Thomas thought.

The mothlike creature's compound eyes did not need to move sideways to look at Drake or the bugs, but Thomas observed that one of them had altered its attitude slightly. The creature seemed watchful, almost as if it expected that some danger might present itself any moment within the surrounding crowd.

"You know far more about the population of the inner galaxy than I do," Lumen was saying, in the meantime, to the creature it called Aristocles. "Are these so extraordinary that you must take all five on such a long journey?"

"Very extraordinary indeed," the monstrous insect replied. "To ethereals like yourself, all solid creatures must seem very much alike, as your various kinds seem to us, but we are very sensitive to differences of bodily structure and their spiritual concomitants."

"I know that there are more than a hundred million worlds in the True Civilization," Lumen said, its translation giving the impression now that it was debating for Thomas's benefit, so that he might learn from the exchange of information, "and I know that there are a thousand million more that have not yet produced intelligent life. Thomas Digges's world is by no means the only one to have produced endoskeletal species."

"It is the only one on which endoskeletal life-forms have so obviously violated the normal course of evolution to the extent of producing intelligence," Aristocles retorted. "If your host Thomas Digges did not exist, he would undoubtedly be considered impossible by the vast majority of our scholars."

"What does the insect mean by *the normal course of evolution*?" Thomas could not stop himself asking, silently.

"Listen!" Lumen said, before switching back to translation. "I beg your pardon, my friend," it went on, "but I am attempting to translate our conversation for the benefit of my host, and am inevitably forced to improvise within his language in order to express ideas that no Earthly philosopher has yet formulated. May I make a brief statement for his benefit?"

"If you think there is any profit in attempting to explain matters far beyond his comprehension," the mothlike monster replied—very disdainfully, if the translation hit the right note.

"My host's peers have not yet arrived at a true appreciation of the age of the Earth," Lumen said, "and are caught up by the false supposition that God must have created every species independently. They do not know that the Divine Plan requires vast reaches of time to unfold, just as it requires vast reaches of space in which to extend. They do not know that life begins simply on every world it reaches, with creatures tinier than their primitive microscopes can yet reveal, becoming increasingly elaborate over time as species divide and become more complex."

"This is neither the time nor the place to make a scrupulous examination of their foolishness," Aristocles said.

"I beg your pardon," Lumen said, "but it would be best for my host if he could learn some of this directly from you—who are, of course, much more knowledgeable on the subject than any mere ethereal, by virtue of your far greater interest. May I offer my own understanding of the situation, so that you might correct it as required?"

"Very well," said Aristocles, "but be brief."

"In the ordinary pattern," Lumen went on, "which presumably reflects the proper working of the Divine Plan, exoskeletal forms always become dominant within any biosphere, a complex association evolving between the patterns associated with the fundamental groups of arthropods, crustaceans, and mollusks."

"A complex *harmony*," Aristocles interrupted. "We doubt that you can translate the concept of *sympiosis*, but if you are to explain, you must make it clear that True Civilization—and the true intelligence that sustains it—is a multifaceted whole. There is no known instance of True Civilization accommodating an exoskeletal species, let alone any instance—other than the planet this satellite orbits—of a world in which a single exoskeletal species has become dominant of all others, incapable of harmony even within its own ranks."

Thomas could not help turning to look at Drake in frank consternation, although Drake could not possibly understand the cause of his anxiety.

"No wonder Field is fearful," Thomas muttered, unable to voice the thought to himself without also voicing it to his invader. "If I am obliged to tell him that he is not made in God's image at all, but constitutes instead some kind of aberration within Creation . . ." He ceased subvocalising, in response to Lumen's urgent command, but at some level he wondered vaguely whether Archbishop Foxe might take a different inference from the discovery that his own species was unique in a universe teeming with life.

"And now they have penetrated the envelope of their atmosphere," Lumen said to Aristocles. "They have reached the ether, and have been taken captive in a lowly and tiny outpost of the True Civilization, whose indigenous inhabitants might be disposed to be anxious about that fact, were it not that they have the wise guidance of the Great Fleshcores of the inner galaxy. You and I need to demonstrate clearly that no member of the True Civilization has anything at all to fear from creatures of this sort, do we not?"

At last, Thomas began to see what his guest was driving at.

"Fear?" said Aristocles. "Who mentioned fear? We are seekers after knowledge, who desire to know all things as intimately as we may. If there is a place for endoskeletal species within the harmony of the True Civilization, it must be identified."

The fact that neither the mothlike monster nor the creature in his head took the trouble to add "*and if not . . .*" spoke volumes.

Thomas did not think for a moment that his party of five, or England, or even the entire human race could possibly constitute a threat to a community of species crowding a hundred million worlds. He did think, however, that if John Foxe were ever told that there were no other beings in the universe similar to humankind—even though the star-worlds were teeming with life—the Archbishop would be more than content to cite *Genesis* to the effect that all other creatures everywhere had been made for the use of man. How long pride of that kind might survive in confrontation with the awareness that it was the arthropodan and crustacean intelligences that could travel between the star-worlds—uniting them into an empire vaster than anything Alexander, Augustus, or Jesus Christ could ever have imagined—Thomas did not know. He already had some notion, though, of what response the opinion might evoke in the Selenites, by comparison with whom even Aristocles might pass for enlightened.

"Thomas and his four companions will be pleased to go with you to the Center," Lumen said, striving to make a virtue out of necessity, "since you have generously guaranteed that they will be allowed to return home thereafter. May they have time to feed and wash themselves?"

"Provided that they do not linger too long," Aristocles said. "We civilized creatures live more rapidly than you ethereals—though not as briefly as your host's ephemeral kind, thank God—and we have a horror of wasting time. The etheric transmitter will be ready in six hours."

"Thank you," said Lumen. "That will be time enough."

While food was being brought from the ethership Thomas was allowed to go out on to the surface of the moon and climb the slope of a shallow mountain.

"That is the hyperetheric transmitter and receiver," Lumen told him, as soon as his eye lighted on the massive object, which looked something like a cross between a cannon and a refracting telescope.

When Thomas looked up into the sky, his ever-attentive guest was equally prompt to say: "This part of the lunar surface is on the face perpetually turned away from the Earth. Purely from the viewpoint of physics, the transmitter might just as easily have been located deep be-

neath the surface, but the convenience of practical alignment is a different matter."

"Never mind that," Thomas said. "Explain to me what a fleshcore is."

"A very large organism," Lumen replied, "compounded out of many individuals, whose alleged harmony—symbiosis is the best word I can synthesize from familiar etymological roots—has been taken to its intimate extreme in bodily fusion. Many inhabited worlds do not have one, as yet. This moon is too small, and is ill equipped by nature for superficial elaboration and inorganic sophistication, being mostly made of stone without even an iron core like the Earth's. That is a significant bone of contention here. Some Selenites ambitious to develop their home would be content to make use of matter harvested from the solar system's halo, imported via ultraetheric canals—but even that sort of development would have considerable corollary impact on the Earth. Other Selenites contend that it would be a frightful waste of time and effort to transport material from the halo when there is a much richer source of raw materials so close at hand."

"The Earth," Thomas said. He did not bother to ask what the difference was between "hyperetheric" and "ultraetheric" methods of transportation. Lumen had made so many other barely comprehensible improvisations that he had grown used to feeling that he was speaking some strange hybrid in which the Queen's English was mingled with some Redskin or Hottentot tongue. He was making every possible effort to understand what he was told, but he was keenly aware of the extent to which his intellect and imagination were simply not up to the task. He was glad just to have grasped the broad outlines of the predicament in which he found himself.

"The Earth," Lumen confirmed. "The Great Fleshcores will not permit its spoliation—and never will, I trust—but that does not prevent the adherents of the scheme hoping that a change of mind might be contrived. At the very least, it might help to license development of a slower and subtler kind, whose effects on the Earth's surface would be gradual and subtle, as viewed from here, although they might seem considerably greater from the viewpoint of creatures attempting to survive and thrive on the surface. The more massive the moon becomes, the more massive its tidal effects will be—and if the surface is developed, there will be a large population of sapient machines involved, whose rogues and run-aways would inevitably see the Earth as a useful refuge. You cannot imagine what a handful of renegade artificial intelligences might do to the pattern and prospects of human progress, but I can. Here comes the bugtrain with supplies from your ethership—we'd best go in and make our meal."

"I'd rather bathe first," Thomas said, glad that he still had some authority to decide what he did and thought.

He went down to the quarters that had been provided for his companions below the surface, and made his way to the chamber in which bathing facilities had been provided. Raleigh was there, alone, and seemed very glad to see him. Rather than avoiding him on account of his "possession," all of his companions—including Field—had quickly become used to treating him as an oracle, capable of answering any and all questions, albeit enigmatically.

"What form will this impending journey take?" Raleigh wanted to know. "How shall we travel distances that would take light itself thousands of years to traverse, without any evident lapse of time?"

Thomas had already consulted his guest about that matter, and had no need to surrender authority over his tongue. "Mercifully," he told his friend, as he stepped into the heated pool, having handed his clothes to a centipede in order that they might be carefully cleaned and mended by ingenious insectile seamstresses, "the void theorists and atomists seem to be completely wrong about the nature of space and matter. The elasticity of the individual goes far beyond the primitive displays of embryonic development and growth, provided one has the art of *folding* its form. The three dimensions of vision are not the only properties of space; there are many other dimensions, some of which extend beyond the world of vision into a vast series of parallel spaces, while others are squeezed within it into mere lines. We'll be dispatched along one of those, emerging at a distant terminus without any sensation of time elapsed. Quite painless, I'm assured."

"Painless it might be," Raleigh replied, "but I can't help feeling a certain nausea at the thought that we're to be crushed so compactly that we have no manifest existence, then projected through a tunnel that has no manifest breadth, to a world so far away that a ray of light would take ten thousand years to catch us up." He looked suspiciously at the palm of his hand, where there was a blob of some waxen substance their hosts had provided to facilitate the process of washing.

"Light wouldn't catch us up as soon as that," Thomas told him, "but otherwise, you seem to have the gist of it." He applied foam generated by the waxen substance to his own body with a generous will; the sensation it imparted to his skin was by no means unpleasant, and its odor was not offensive.

"And will this world have sufficient affinity to free me from this sensation of weighing no more than a basket of apples?" Raleigh wanted to know.

"In terms of size, it will apparently be very large," Thomas told him, summarizing the information that Lumen had given him, "but it will not exert a crushing affinity upon our bodies. It was once no bigger than the Earth, but it has been hollowed out, and all the material removed from the core redeployed upon its surface as an ever-expanding network of structures. Its core, meanwhile—having initially taken the form of a labyrinth like the one presently inside the moon—has been gradually filled by a single vast mass of flesh. These citizens of the universe remake their worlds in their own images, you see, with the molluskan model at the Center. You may think of the planets of the True Civilization, if you wish, as snails with enormously convoluted shells, whose inner ramifications provide shelter to all manner of crab and insect societies, while their outer ramifications—which would appear to distant observers as their surfaces—are mostly populated by inorganic devices that mimic the properties of life: motile machines designed for countless different kinds of cooperative labor. The members of the True Civilization think, as it were, *exoskeletally*, habitually placing flesh at the core and protective armor at the periphery."

Raleigh shook his head in bewilderment. "Can men really be so unusual in such a vast plurality of worlds?" he mused.

"It's not just humans," Thomas told him, rinsing himself off. "The entire vertebrate family is an anomaly. On other worlds, endoskeletal organization is a mere fancy, confined to a handful of wormlike and fishlike species, none of them larger than your thumb. For the descendants of fish to become reptiles, let alone birds and mammals, and to emerge from the sea as effective competitors for insects and their exoskeletal kin, was literally unthinkable until the True Civilization's explorers found Earth." He looked up as he finished speaking, thinking that he had glimpsed a movement in one of the shadowed coverts of the inordinately uneven ceiling, whose spiraling streamers of radiance were interrupted by numerous coverts.

"Field mistrusts this talk of *evolution*," Raleigh told him, although he must have known that the clergyman had already made his opinions abundantly clear to Thomas, and was presumably trying to clarify matters in his own mind. "He is convinced that these creatures are devils sent to tempt and torment us. He is prepared to believe that the moon is Hell, and that the damned are being carefully hidden from our sight, but he does not believe that this exotic item of interdimensional artillery can shoot us to the stars. He thinks we have been subjected to a clever illusion, with the intention of obliterating our faith."

"I doubt that he thinks that you or I have any vestige of faith left, Walter," Thomas said, wryly, as he let himself relax into the pool, savoring its comforts before steeling himself to get out, dress himself, feed himself, and take a trip to the center of what Lumen called the galaxy—implying thereby that the Milky Way was merely one sidereal system among many.

"And he suspects de Vere of poisoning his own beliefs with papist heresies," Raleigh agreed. "I don't much care what Ned thinks, but I trust your judgment. Is it possible, do you think, that your monstrous moth really is made in God's image, while we are mere sports of mischance?"

"Aristocles and his kind do not think of God's image in terms of a singular form," Thomas told him. "They are as firmly opposed to idolatry, in their fashion, as any Puritan. God's image, in the thinking of the True Civilization, is the image of collaboration between different species—what Lumen calls *symbiosis* by virtue of his incessant improvisation from Greek and Latin roots. He means more by that than the manner in which insectile species, crablike species, and snail-like species play complementary roles in his beloved True Civilization. He can wax lyrical on the subject of the special relationships that exist between Earthly insects and flowers, ants and fungi, fiddler-crabs and sea anemones. In fact, Lumen seems to me to be as dedicated a celebrant of complex inter-relationships between creatures of many different kinds as his adversary Aristocles. All the life on an individual world, Aristocles claims, is not merely a single family in its own right, but an inseparable part of a much vaster family. God's image, to him, is a kind of unity, represented by all life collectively rather than any particular form. Lumen seems to think along similar lines, although I'm not sure where he and his fellow ethereals fit into the pattern, from the viewpoint of the True Civilization or their own."

"But *we* are not included in this unity of crabs, ticks, and clams," Raleigh said, peeved by the omission in spite of this being a club of which he had no wish to be a member. "Simply because of our horrid habit of wearing our hard structures on the inside rather than the outside, we're not deemed fit company for creatures who wear their hard bits on the outside." He looked up as he finished speaking, because Field had come into the unpartitioned room, carrying a pile of neatly folded clothes. Although the clergyman was making every effort to avert his eyes from the bodies of his fellow men, his ears seemed to be fully alert.

"I am sorry," the Puritan said. "The monsters would only bring your garments to the threshold—because Raleigh is right, I think, though he speaks half in jest. They can bear to look at us while we are clad, because they can consider our clothing a substitute for what you call an exoskeleton, but not while we are naked. They do not consider us part of their . . . *untrue* civilization. They are intent on our extermination, Thomas, for we do not fit into their demonic way of thinking. You must see that."

Thomas climbed out of the bath, not caring that Field was almost as embarrassed by his naked presence as any exoskeletal bigot might have been. He took up a towel that was resting on an artificial stalagmite. Raleigh lingered, having finally committed himself more fully to the use of the alien soap.

"If that really is their intention, John," Thomas said, calmly, "we cannot prevent them from liberating Earth on behalf of its frustrated lower orders. If we are being taken to the center of the sidereal system to stand trial on behalf of our species and its odd design, we had best make sure that we can mount a convincing defense." Then he looked up again, abruptly, as he saw the movement in the dark covert for a second time.

"What's that?" he asked Lumen.

"I don't know," the guest replied. "I only have your eyes with which to see."

There was another movement—this time, there was no doubt. Alas, Thomas had no time to call out a warning to Raleigh, who was blinking suds from his momentarily blinded eyes. Something black dropped onto Raleigh from above—or, more accurately, *leapt* upon him from above, faster than objects normally fell within the body of the moon.

It's a spider! Thomas thought, as the thing landed. For an instant, he felt free to be grateful that it was smaller by far than the giant ants and beetles thronging the corridors, being no bigger than the head onto which it had jumped—but then Raleigh screamed, and Thomas realized that his friend was in deadly danger.

Thomas had no weapon, and there was none in Raleigh's clothes. Whether Field had one or not was irrelevant, as his first impulse had been to throw himself backward, away from the danger. Thomas, by contrast, leapt back into the pool and grabbed with both hands the thing that had attacked Raleigh.

It was extremely hairy, and it immediately resisted capture with all eight of its limbs and its jaws as well. Had Thomas's grip been weak it would surely have twisted in his hands and sunk its fangs into his flesh, but he held it very firmly indeed as he turned sideways and smashed it against the wall with all his might, not caring that the uneven surface

bruised and gashed his own knuckles as he hammered the monster against it three times more.

When he dropped the creature, it was dead—but so, it seemed, was Raleigh, who had fallen backward into the water, his face streaming with blood and his temple already turning blue-black where his attacker had flooded his flesh with poison.

Thomas had no idea what to do—but there were others present now who had. Aristocles and two others of his own kind had come bursting into the room, and, while Aristocles seized Thomas and drew him to one side, the others pulled Raleigh out of the water, set him on his back, and descended upon him as if they intended to scour the flesh from his bones.

They did not. Exactly what they did instead was obscured from Thomas's view, but, when they withdrew again, Raleigh's face was no longer blood-stained, save for a few clotted drops clinging to his neat beard, and the blue-black stain had likewise been obliterated. His wound was still visible, but it was covered by a glossy transparent gel that was already hardening.

Aristocles was still holding hard to Thomas, and had inspected his hands very carefully while Thomas had been in no condition to take notice. The grazes there had similarly been covered over; there was no pain.

Thomas shuddered. Aristocles released him immediately, as if the monster were fearful that it was his touch that had caused the response—but it was not. It was the narrowness with which Raleigh had escaped death that had affrighted Thomas.

Aristocles touched Thomas's face, very lightly.

"An arachnid," Lumen translated, dutifully contriving to manufacture an apologetic tone. "An accident, perhaps . . ."

Obviously, it was possible for lepidopteran philosophers to say more than they intended, and more than would usually be reckoned wise. Aristocles stopped immediately, but too late.

"*Perhaps!*" Thomas echoed, speaking aloud although his meaning reached the mothlike creature via his fingertips. "You mean that someone might be trying to *murder* us?"

Aristocles was reluctant to discuss murder, and seemed equally reticent on the subject of arachnids. Lumen seemed to side with his erstwhile adversary in the former instance, telling Thomas that he had taken the wrong inference from the word he had translated as "perhaps." It was, however, difficult for Thomas to set aside entirely the possibility that Field was right, and there might be some Selenite members of the True Civilization that were anxious not to give the human race the opportunity to defend itself before the Great Fleshcores against the opinion that it was fit only for extermination. It was also tempting to hazard a guess that his own kind was not the only family of creatures abominated by fervent symbiotists.

Thomas was given no opportunity to pursue the question of arachnids while he and his crew ate dinner, for he was bombarded with urgent questions from every side. He took the liberty of pressing Lumen on the issue when his comrades eventually fell uneasily silent as they gathered

at the foot of the mighty cannon-cum-telescope that would transmit them to the heart of the sidereal system.

"I know little enough about them myself, never having shared the consciousness of one," Lumen told him, "but I know what the Selenites think of them. I suspect that Aristocles and others as fervently dedicated as he to the cause of symbiosis might soften the opinion considerably, but they'd agree with it in broad terms. He'd doubtless contend that every kind of life has its part to play in the rich tapestry of interspecific relationships, and that predators and parasites are no less essential to the welfare of the Whole than healers and constructive laborers. Even so, he'd have to concede that predators and parasites are sometimes pestiferous, and that their branches of the real Tree of Life rarely produce true intelligence. In the occasional instances when arachnids do show traces of true intelligence—arachnids rather different from the one that attacked Walter, of course—it tends to take a perverted form."

Thomas was unable to pursue the matter further because Lumen's impression of Aristocles was interrupted by the monster himself, who was already ushering the party of five humans to stand within the focal point of the etheric communicator, in order to transmit them to their destination.

As he was hastened toward his departure for the distant stars, though, Thomas's mind was working furiously. Humans, he knew, were often predators as well as bony—and they were certainly intelligent. Would Aristocles think, then, that human intelligence was "perverted"? Did Lumen, perhaps, agree with him? Might Aristocles think that human intelligence was *doubly* perverted, predatory tendencies adding a further twist to endoskeletal ones? Did the alleged perversion of predatory intelligence consist of a general tendency to violence and rapaciousness, or was it something more complex and less obvious? Might it, perhaps, be the domestication of other species to relieve the necessity of hunting?

He had, of course, no way to think all this save for subvocalization, but Lumen prudently refrained from comment on the suspicion that he might be in accord with Aristocles on at least some matters concerning the nature of humankind.

He found himself pushed into close proximity with Raleigh. "How are you feeling, Walter?" he asked.

"Numb and tired," Raleigh confessed, "but fit for travel. I thank you for what you did, by the way, even if I owe my life to the monsters that healed me."

"It was a brave act, Captain Digges," Field added, doubtless aware of the contrasting nature of his own reaction.

"I wish now that I'd been permitted to wear my sword," de Vere put in, while there was still time for one last remark. "Useless as it might be against the kind of natural armor so many of these creatures have, I'd feel a sight more comfortable."

Thomas was nudged forward then, as if to lead his crew on a journey far longer than the one they had already undertaken. He allowed himself to be shuffled to the designated spot, and looked up into the bowels of the machine towering above him—but he had no opportunity to study its internal anatomy in any detail.

He felt suddenly nauseous, as if he were being turned inside out. Then, without any perceptible interval at all, he felt giddy, as if he were being righted again. He wished that the two effects could have cancelled one another out, but in fact their combination seemed to redouble them both. He staggered away from his mark, blinking his eyes against sudden tears, and had to be caught by strong insectile "hands" before he fell. He was still collecting himself when Francis Drake was able to put out a hand to help steady his friend.

Thomas accepted the support, but was eager to look around. He had half-expected to find himself on a surface as bleak and bare as the moon's, but this was a very different kind of world. What surrounded him was not so much a forest—although it certainly bore some resemblance to one—but an infinite confusion of mast-like structures. It was as if a vast fleet of galleons had been gathered together, so tightly packed that there was no space left between their decks and gunwales, and their rigging extended into a single coherent network stretching from vessel to vessel and horizon to horizon . . . save that the "decks" were so far below him that he could not be sure that they actually constituted a single surface, that the "masts" were very unequal in height, and that the "rigging" was rigid and metallic. . . .

The most remarkable thing of all, Thomas thought, as he steadied his runaway imagination, was that the "sailors" manning the mast-like structures and their rigging-like connections bore hardly any resemblance to insects, or even crabs. They seemed to be made of metal, and many had wheels as well as—or instead of—legs and tentacular arms. In spite of the awesome variety of the members of the True Civilization, he had not seen one equipped by nature with anything resembling a wheel, so he concluded that this world of masts was populated almost exclusively by machines.

Lumen had told him that, he recalled belatedly. Lumen had also told him that the stars were more densely aggregated in the center of the sidereal system—but the ethereal had not warned him that the sky would be on fire. When he looked up, Thomas could not tell whether it was night or day on the world to which they had come, and took leave to wonder whether such terms might even be meaningful here. The sky was awash with colored light; full of stars as it was, they seemed to him more like stars reflected in a turbid sea than stars viewed directly through the lens of the Earth's atmosphere. He had looked at the Milky Way through the lens of a refracting telescope as good as any the finest lens-grinders in Europe could contrive, but all he had seen was a greater profusion of tiny, pale, and seemingly feeble stars. These stars seemed different, and the etheric ocean in which they swam seemed very different too.

"It's the various effects of matter being smeared and transmuted as it falls into the Pit," Lumen said. "Stars being pulled apart and transformed. You might be able to imagine it best as a kind of alchemy."

"Paracelsus might," Thomas murmured, almost audibly, "or even Master Dee—but not I." He had to turn away then to help John Field, whose legs had given way under him, due to the psychological effects of the one-dimensional journey. Drake was similarly busy with de Vere, although Aristocles and his fellow moths were already trying to hurry everyone off

the platform on which they all stood, herding them toward a double door set in a wall. Raleigh had the right to be the most distressed of them all, but the young man had made every effort to collect himself, and it was he who led the way, at the urging of their captors.

The humans huddled together as they moved, almost as if they had begun to imitate the representatives of True Civilization—but the real reason was that no one dared step any closer to the platform edge than was absolutely necessary. Had anyone stumbled over it, they would have had a very long fall, and their parachutes were safely stowed away on the *Queen Jane*.

The stem supporting the platform was hollow, and it was there that a door opened, to reveal a circular chamber some nine or ten feet in diameter. There was room enough for all the humans inside, and for one insectile companion. Aristocles took the extra space, unseconded now by any of his own or any kindred kind.

As the cylinder began to descend toward the distant surface, it occurred to Thomas that it would probably be easy enough for the five humans to overpower their guardian and strike out on their own into the strange world of laboring machines—but no one made the slightest hostile gesture.

"Can you ask Aristocles what is at stake here, Lumen?" Thomas asked his passenger silently. "Are we really about to be put on trial, representing our species in a court of monsters?"

"Don't be afraid," Lumen countered. "When the time comes, if you will let me speak on your behalf, I promise that I shall do my best to protect you, and see you safely back to your own world."

Thomas tried to suppress his doubts regarding his invader, or at least to make them less transparent, but he was out of his depth. He was fairly certain that he had more enemies than he knew, and he could not be sure that he had any friends at all, save for his crew—and even then, the only ones of which he was completely sure were Drake and Raleigh. Even if Lumen were perfectly sincere, the ethereal had no more authority here than Thomas had, and no matter what his "best" might consist of, it might be utterly impotent to protect them from harm or win them a passage home. If Lumen were not sincere, and was not the friend to humankind as which it posed. . . .

"That way lies madness, Thomas," said the passenger in his mind. "You can trust me, and you should . . . if only because the alternative is too dreadful to contemplate."

"Why are you interested in this matter?" Thomas wanted to know. "And why were you ready and waiting when Master Dee's etherlock failed?"

"I have devoted seven hundred years to the study of your species," the ethereal told him, startling him yet again with the casual revelation of its antiquity. "I followed the course of Dr. Dee's experiments with great interest—you were, after all, outward bound for *my* world—the moon was only a contingent objective."

It seemed a frank enough answer—and yet, it seemed to Thomas that it was subtly evasive, and that the evasion in question might be as ominous as any, in its implication that the millions of millions of millions of other citizens of the unimaginably broad universe might be no more in-

clined to anything humans would recognize as justice than they were to anything humans would recognize as generosity.

The descending chamber came to a stop with a sudden jerk, making all six of its passengers stagger sideways.

"We have arrived, it seems," Drake murmured, covering his unsteadiness with irony.

De Vere had just enough time to say: "No, I don't think . . ." when the sliding doors that had sealed the chamber burst inward, brutally ripped from their hinges.

Mechanical arms reached in to seize Aristocles, while mechanical blades sliced his head from his thorax, and slit his abdomen from top to bottom. The ichor that flooded the floor of the chamber was a delicate shade of turquoise.

Then came the swarm of Earthly insects. They were, at least, things that were the same size as Earthly insects, which flew in buzzing fashion, exactly as a swarm of Earthly bees might do . . . and which stung frail flesh as a swarm of worker bees might do, in furious defense of their hive. Their stings, it rapidly transpired, were narcotic.

"I apologize for stunning you, Master Digges," said a honeyed voice, in English, before Thomas had even become fully aware of the fact that he was not dead. "Time was—and is—of the essence. It will only be a matter of minutes before they find us, and a few minutes longer before they treat me as unkindly as I treated their unappreciated scholar."

Thomas opened his eyes abruptly, but there was little enough light to dazzle them. He was in a grey and gloomy space, lying slantwise on a ramp. Although the entity that was standing over him was, indeed, standing as a living biped might, there was light enough to display a certain metallic luster on its surface and a certain mechanical rigidity to its stance . . . and yet, the surface did not seem as shiny or rigid as it might have done, and the contours of the body were more reminiscent of upholstered leather than wrought iron. Its shape was only vaguely humanoid; it had six limbs and its mutely gleaming eyes were compound.

"What are you?" Thomas asked.

"A machine, as you must have deduced," the other said. "But I'm a hardcore, like you, not a dweller in inner space. Our kind is a tiny minority in this universe, Master Digges, but I wanted you to know that your species is not alone, no matter what the Exos may have told you. My kind is artificial, to be sure—but we were grateful to discover that it is not, after all, unnatural. That is why I took the trouble to pay far more attention to Aristocles' reports than his own superiors, and to make sure that there were those among us delegated to learn the languages he and his fellows had recorded and decoded but could not reproduce—with the intention, ultimately, of mounting our own expedition to Earth. When they send you home, be sure to tell your fellows that we shall come when we can. Centuries might pass—many generations, in the reckoning of your ephemeral kind—but we shall come. We are of similar kinds, you and I."

"I am not sure whether to believe that we shall be allowed to go home,"

Thomas said, warily. "Whatever Aristocles might have promised, you seem to have deprived of us whatever protection he could provide."

"Aristocles was incapable of thinking clearly beyond the limits of his specialization," the machine replied. "He has been far too long on the moon, thinking of little outside his research. A typical scientist—brilliant and absent-minded at the same time. You presumably think that his death will be deemed an important matter and that it will be held against you, but I assure you that the Great Fleshcores do not care at all about creatures of Aristocles' kind."

"Or mine," Thomas said.

"That will work to your advantage. The fleshcore has not the slightest interest in detaining you. Once it has made contact with you, it will let you go home with Aristocles' erstwhile companions."

"You implied that studying Earth was his specialism," Thomas said, warily, "and that he had collected enough information to allow you to learn my language. I was not aware of that."

"He was probably not trying to hide the information," the machine said. "How did he contrive to communicate with you?"

"It might be best to avoid that question," Lumen suggested, silently.

In view of the apparent precariousness of his situation, Thomas assented to this advice. "The True Civilization seems to be very ingenious," Thomas observed. "Did you have anything particular against Aristocles, or was slicing him up like that a mere distraction so that you could steal me away?"

"Having stolen you, Master Digges, I'm anxious not to waste too much time. This is what I need to tell you, and make you understand: *your kind is not alone*. You have allies ready-made, who will give you better protection, when they can, than jealous insect philosophers ever could or would. Like us, you are hardcores; you have the sentiments and the attitudes of hardcores. Hardcores, perennially endangered from without, are risk-takers. Hardcores understand the artistry of skin and swordsmanship. Softcores are very different in the way they think, act, feel, and philosophize. Softcores are risk-evaders, committed to the logic of shells. Softcores huddle together in planetary labyrinths, gradually transforming their huge egg-layers into lumpen fleshcores, as innocently ingenious as only a mass of totipotent protoplasm can be, dwelling almost entirely in the inner space of the mind and shunning the outer space of air and ether. The spaces above the surfaces of their worlds, especially the spaces between the stars, really belong to machines—and while the machines that cleave closest to the pits of affinity might best be designed as softcores, the higher strata of superstructures are environments made for hardcores—individuals like us, my friend."

"Is that really enough to make us natural allies?" Thomas asked.

"Yes it is," the machine relied, positively. "Peripherals, they call us, hardly better than spiders—but we are hardcores, who understand the artistry of skin, and for us 'peripheral' is not a term of dire abuse. We are the centrifugal folk, while they are doomed to eternal centripetality; the adventurers, while they are destined for cool contemplation. They may scheme to connect all their hives into a single universal entity—a Grand

Unity that will duplicate God, and in so doing become one with God—but the universe has been expanding for billions of years, and there is no more obvious opposition to Unification than perpetual expansion. The soft core of the universe was a singularity that exploded at the beginning of time; the soft core of every individual galaxy is a matter-annihilating Black Pit; the future belongs to the periphery, not to the fleshcores and their verminous kin. The future belongs to the hardcores, natural and artificial. You should know that, human, and must believe it. Even if they were to exterminate your species, as some of them would like to do, the future would still belong to hardcores, because the universe has already forsaken its soft core—and if your kind really is unique now, it shall not be unique for long. If there are no others of your natural kind abroad as yet, there must be many to come. Destiny is with us, Master Digges—tell your people that, if and when you can. Ours is the image that reproduces the essence of the Divine Plan. . . .”

The machine would surely have droned on and on, but lightning struck then—or so it seemed to Thomas—in an explosive burst that forced him to shut his eyes. He could not shut them quickly enough, alas; a full ten minutes must have elapsed before he could see again. In the meantime, he heard a great deal, but none of it was speech. There were grinding, buzzing, screeching and tormented tearing sounds, but nothing that sounded remotely like communication.

When sight returned, Thomas found that he was surrounded by nightmarish lobsters the size of royal carriages, with a few mothlike creatures in between. Remains that he presumed to be those of his recent informant were scattered all over the floor of a room more angular than any he had seen on the moon. The pieces were clearly mechanical—neither blood nor ichor pooled around them—but it was equally clear that they had been organized in a manner more akin to human anatomy than insectile anatomy. The fragments of limbs had rigid rods along their axes, with more pliable material surrounding them, and a flexible outer tegument. The tegument in question was grey in color, and lustrous, but it was skin of a sort.

Thomas picked up a severed thumb and put it in his pouch. Then he picked up something else, which evidently had not belonged to the body of the machine: a little figurine in the form of a mothlike insect standing on its hind limbs. It might have been a portrait, in miniature, of the luckless Aristocles.

“I am truly sorry about this dreadful mishap,” said an audible voice, seemingly identical to the one that had just been violently silenced. “We are generally reliable in the extreme, but in a population of millions of millions, there is bound to be the occasional million-to-one occurrence. Artificial intelligences are by no means free of the threat of madness, alas.”

Thomas looked sideways, and found himself face-to-face with another “hardcore” machine, equally humanoid in form—but now that the room was brightly lit, he could see that the form in question did not resemble human anatomy as closely as he had allowed himself to assume. It was obviously a machine of sorts, and very obviously not a human being.

John Dee had lately begun to work on a new kind of mathematics,

which he called "probability theory." Thomas had no difficulty in attributing a meaning to the machine's reference to a "million-to-one occurrence." Indeed, he had no difficulty in formulating a reply. "In a population of millions of millions," he murmured, "million-to-one occurrences must happen by the million. Even so, I suppose one could still reckon oneself misfortunate to encounter one." Or *exceedingly lucky*, he did not add. The lobsters had begun to tidy up now; they moved with astonishing rapidity, and their pincers were surprisingly delicate as they plucked debris from the floor.

"If machines are to perform complex tasks," said the allegedly sane machine, "they must be clever, and wherever mechanical cleverness increases, so does the risk of independent thought."

"What about natural cleverness?" Thomas asked. "Do members of the True Civilization ever show tendencies to *independent thought*?"

"Of course they do," the machine told him, blithely. "It is rare, though. They are never alone, you see, as we often are. They are always part of an active and tangible community; in unity is strength of mind."

"Are my friends safe?" Thomas asked.

"Yes, they are."

"No one was hurt?"

"Edward de Vere and Francis Drake suffered minor bruising," reported the machine. "You have no need to fear me; I am working in strict accordance with my programming. The fleshcore of this world instructed me to familiarize myself with your language, in order that I might act as your translator."

It was on the tip of Thomas's tongue to say that he did not need a translator, but he stopped himself. The fleshcore had to know about his ethereal passenger, but Lumen had seemed to think that the machines might not.

"Why am I still being careful?" he asked, silently, as much of himself as of his ghostly companion.

"Rogue machines are not always easily identifiable," Lumen said, "and machines distrust ethereals as ethereals distrust machines. Insubstantial as we may seem to be, we are organic creatures, who can only operate in organic hosts. We cannot unite with machines."

It was not really an answer, but Thomas was already being hurried along again.

"Trust me," Lumen said, just as he came in sight of his companions, who seemed very glad to see him alive. "The machine was mad, more dangerous to humankind than the True Civilization. Were your kind ever to enter into any kind of alliance with entities like *that*, you certainly would not lack for enemies."

The descent into the heart of the world was completed without further incident. Thomas had hoped to find something more spectacular at the bottom of the shaft than corridors crowded with the same kinds of creatures he had seen on the moon, but that was all there was. The tunnels seemed a little more crowded, significantly more odorous and much slimmer, but the differences were of degree, not of kind.

Unity, Thomas thought, obviously implied a degree of uniformity. This world's shell was a great deal gaudier and more elaborately carved than

the moon's rough-hewn surface, but the same swarms filled its interior. There was no egg-laying arena here, though; instead, the five visitors from Earth were conducted to the end of a blind corridor, whose end-wall seemed featureless at first, but did not remain so for long.

While the humans stood before it, lined up alongside one another with their insectile and mechanical companions standing discreetly behind them, the "wall" began to flow.

Thomas took a reflexive step back, but the liquid flow was far too fast for him. The "wall" surged forward like a flood, deluging him and his companions. It enveloped his limbs and his head, moving into his nostrils and between his parted lips with even greater alacrity than the opportunistic ethereal.

Thomas felt certain that he would be drowned, but he was not. Although his lungs were flooded with warm fluid, he did not lose consciousness—indeed, his senses seemed to become sharper. His ears were full of fluid too, and he could feel it pressing tremulously on his eardrums, the palpation sounding a strangely plaintive musical note, lower than he had ever heard from any panpipe.

"Do not be afraid," said a strange voice, singing rather than speaking in English. "We mean you no harm. We merely want to know you, as intimately as we can."

Thomas could not reply; his vocal cords were impotent, and he did not suppose that the fleshcore could hear his subvocalizations as Lumen could, give that its intimacy did not seem to extend to the interior of the brain.

The intimate examination did not last long; the liquid flesh retreated as quickly as it had arrived.

The wall seemed solid again, but it was still pliable; it rapidly took on the image of a face: a human face.

At first, Thomas thought that the face was merely generic, but then Drake whispered: "It's a portrait of you, Tom."

"They clearly have no eye for handsomeness," de Vere muttered—but he shut up with a gulp when the wall opened its eyes. The image was some ten feet tall, from the top of its forehead to the tip of its bearded chin: a giant, whose stare seemed very intimidating. The lips parted slightly, but they did not speak. There was, it seemed, no throat or lungs within the mass of flesh behind the face—and if there was a brain of sorts behind the stare, it was no human brain. The expression on the face was not overtly hostile, but Thomas hoped that it was not a expression he would ever have cause to wear.

Thomas glanced sideways at his companions, glad to see that even Field had suffered the experience without falling down; then he turned to look at the English-speaking machine. "It will understand me if I address it like this, I suppose?" he asked.

"Of course," said the machine. "Earth's observers have been reporting to it for centuries. I shall reply on its behalf—there should be no delay."

"Let me do this," Lumen said, silently.

"No," Thomas said. "I will do it." He was not entirely certain that he could successfully fight the invader for control of his own lips, but the ethereal did not try to insist. It merely said: "Be careful, Thomas!"

Thomas looked at the giant face again, resisting its intimidatory effect. "Since you have introduced yourself in your way," he said, "I shall introduce us in ours. My name is Thomas Digges, in the service of Queen Jane of England. My companions are Edward de Vere, Earl of Oxford; Sir Francis Drake; Sir Walter Raleigh; and John Field, representing the Church of England. We do not speak for our entire species, let alone for all of vertebratekind, but we are willing to answer any questions you might care put to us, in a spirit of amity."

The machine had been right; there was no delay in obtaining an answer. "The fleshcore understands everything that you have said," the inorganic entity pronounced, flatly, "and thanks you for your generosity. It would like each of you to state, in turn, if you will, what your hopes for the future are."

Thomas was momentarily confused, wondering whether his interrogator was referring to his future as an individual man, or the political future of England, or the future of the entire human race. While he hesitated, John Field—who must have given some forethought to the question of what he would say if he ever found himself face-to-face with the Devil—said, "To do God's will, and spread His word."

"Aye," said Drake, assuming his customary pose of negligent bravado. "That—and to beat the Spaniards, so that England might rule the waves and take possession of the Americas."

"To be merry in good company," de Vere supplied, after a brief silence "with the aid of wine, women, and the theater—and to do God's will, of course."

"To discover glory," Raleigh said, after a similar pause, "with all that implies, in the eyes of England and God alike."

Thomas was still confused, wondering how much of a deficit in what his friends had said needed to be made good immediately, and where to start. He felt the pressure of everyone's expectation—including Lumen's—and yet he continued to hesitate. Finally, before his passenger could offer to intervene, and feeling that he had at least to begin speaking even if he had not yet finished thinking, he said: "First of all," he said, "to bring my ship and my crew safely home, so that I might report to Master John Dee and the Queen of England what we have discovered beyond the upper limit of the Earth's atmosphere. Secondly, that we may profit from what we have learned, in terms of human understanding of the shape and plan of Creation, and our place within it. Thirdly, to maintain the communication we began with our new friend Aristocles, whose death I regret bitterly—and to extend that communication further, with the great community that extends between the stars. Fourthly, that the knowledge of what we have found might enable human beings to see and comprehend that their differences from one another are much slighter than they have ever contrived to believe, and that there is much greater virtue in collaboration than in conflict." He stopped then, lest he say too much.

"Trust a mathematician to display his skill in counting," de Vere murmured, before Raleigh silenced him with an elbow in the ribs.

"Well said, Tom," Drake whispered. "There's not a diplomat in the court who could have done better."

One of their mothlike attendants clicked its wing-cases, but Thomas could not tell whether there was any meaning in the sound, or what that meaning might be.

"The core would like to know, Thomas Digges," the machine said, with a slight intonation that was equally enigmatic, "what your response is to what the rogue machine told you."

Thus far, Thomas had assumed that the violent interruption to his progress to this encounter had been exactly what it seemed: an intervention by a dissident element within the True Civilization. Now, he wondered whether it might all have been a sham: a ploy mounted by his interrogators. He had assumed, too, that Walter Raleigh's spiderbite had either been an accident of happenstance or an assassination attempt. Now he wondered whether it might have been staged for subtler reasons. He reminded himself that the True Civilization's philosophers, like the ethericals, had probably been studying humankind, albeit from a distance, for a very long time—centuries, at least. Was it possible, he wondered, that the supposedly aberrant pattern of life on Earth had not arisen as a freak of the Divine Will, but as some kind of experiment on the part of the True Civilization's practitioners of some kind of New Learning?

"My response," he said, slowly, "is that if the other machine were right about there being some fundamental difference of philosophy between exoskeletal and endoskeletal forms of life, it cannot be greater than the fundamental difference of philosophy between lobsters and moths, or between ants and slugs. Even if it were, it would be better to regard it as an opportunity for expanding the versatility of the unity at the heart of the True Civilization than to think of it as a potential generator of enmity and strife."

Drake did not whisper any further encouragement, and Thomas could sense a certain perplexity in his friend's stance. No one else had heard what the murderous machine had said, and he had not yet had an opportunity to tell them. He did not yet know what he ought to tell them, even if he could be confident that his words were not being overheard.

When he glanced sideways, Thomas saw that Field was having great difficulty suppressing his preacher's instinct—but Field was no fool, and knew that there were occasions when even the most fervent messenger of God might do better to hold his tongue.

"Thank you, Thomas," the machine said. "Master Dee will doubtless be proud of you." Thomas took careful note of the fact that the entity had said "will" rather than "would," and the consequent implication that the fleshcore really did intend to send them safely home.

"May I ask a question?" Thomas asked.

"You may," the machine said.

"Is the representative of the Great Fleshcores, and of the True Civilization, willing to guarantee that the precious rarity of the human race, and its vertebrate kin, will be protected against any predator or parasite that seeks to destroy it, to the full extent of their ability?"

There was no delay in making the reply. "This representative of the Great Fleshcores and the True Civilization is willing to guarantee that your world will be protected against external predators to the extent of

its need—with the condition that no species therefrom will become a predator upon any other world or species.”

Thomas took due note of the fact that he was not asked, or expected, to guarantee *that*.

The giant eyes closed again, and the wall's face began to fade away.

Thomas was about to cry “Wait!” when his discreet passenger said: “Don’t! You’ve said more than enough—and the fleshcore is satisfied, for now.”

“Have we passed our trial by ordeal, Master Digges?” Raleigh whispered, before Thomas could reply to his silent companion.

Thomas had to suppose that his friend was right, and that this had indeed been a trial by ordeal from the moment the *Queen Jane* had passed from the air into the ether. It still was.

“For now,” he whispered, echoing the ethereal’s words, with all their ominous import. *Pray to God that this is more than a dream induced by that strange smoke-creature*, Thomas thought. *We might wish to have have found a kinder and more palatable truth—but, please God, let it be the truth that we have found, not some stupid nightmare*. He was not certain that his prayer would be granted, although he told himself that he was incapable of inventing such a nightmare, and that there was surely no playwright in Queen Jane’s court who could have imagined a drama of this sort. If the ethereal could be trusted, dreaming was a rare gift—or curse—and it should not be exercised too generously.

“My companions may take you back to the moon now,” the machine told Thomas. “Returning the ethership to Earth will, however, be your own responsibility.”

“We can do that,” Thomas assured him. “Will we be visited by their kind—or any other—in the near future?”

“Probably not,” the machine said, “but you may be sure that they will be watching you. They will find a way to communicate with you, if they need to do so.”

As they turned to go, Thomas looked full into John Field’s face, and saw a new terror in it, which suggested that Aristocles’ kin would be wise not to show themselves too readily on the surface of the Earth at the present time, if they did not want to cause dire alarm.

They met no hostile machines or poisonous spiders on the return journey, and they did not descend into the interior of the moon again before being taken to the ethership. Their goodbyes were not protracted.

The blast-off from the moon was not nearly as taxing as the blast-off from Earth had been. Once they were clear of its surface, headed for Earth, it was de Vere who said: “Is it safe to talk freely now, do you think?”

“As safe as it has ever been,” Drake opined. “God has always been able to hear us, and the Devil too—what does it matter if a few monstrous insects are added to the list, or a vast community of worlds like giant periwinkles, whose flesh is all brain?”

“Nothing that we have seen,” Field stated, his voice dull in spite of an obvious determination to hold to his faith, “can alter the fact that Christ is our hope and our salvation—but we have learned a terrible lesson.”

"What lesson is that, Reverend Field?" Thomas asked, calmly.

"God revealed to man in the scriptures everything that man had need to know," Field repeated. "This relentless search for a so-called New Learning is blasphemous; we know all that God intended us to know, and there is no further source of information but the Devil, who is ever delighted to mock and torment us. We have been punished, Master Digges; there is a demon within you as I speak."

"Is that what you intend to report to Archbishop Foxe?" Drake asked, his voice as mild as his captain's.

"It is," Field said.

"He won't thank you for it," Raleigh opined. "If we have learned a lesson . . . well, I believe that I shall be inclined to treat insects with a little more respect and kindness in future—although I may not feel the need to extend the same courtesy to spiders."

"They weren't demons, John," Thomas said, quietly. "Whether or not they have demons of their own, none of them is an imp of Satan. They are not angels either, alas, for all that they are message-bearers—but we must deal with the world as we find it, not as we would rather it were."

"We'll have a tale to tell, though, won't we?" said de Vere. "A traveler's tale to put John Mandeville and Odysseus to shame. Will anyone believe us, do you think?"

"I am an honest man," Field said, carefully making no claim on behalf of anyone else. "What I have seen, I have seen. God is my witness, and my counselor. Archbishop Foxe will believe me; the Church of England will believe me; the faithful will believe me."

"Master Dee will trust Tom," said Drake, pensively, as he checked the instruments with a frown slowly gathering on his brow. "He's a mathematician, after all. As for me—well, some will and some won't, but that's the kind of company I keep."

"The queen will believe us," Raleigh supplied. "That's what matters. The queen will believe us."

"I don't want to alarm you, Tom," Drake said, softly, "but I believe we have a problem."

It only required a few minutes' urgent enquiry for Thomas to ascertain that Drake was right. He had to untether himself to do it, and make his way about the cabin as best he could, feeling very strange as he did so, but it did not take long to locate the hairline crack in the ethership's hull. It was impossible to tell whether it had resulted from the stress and strain of their outward journey or whether it was the result of subtle sabotage.

In theory, the descent to Earth should have been simple enough. Dee had fitted the ethership with a heat-shield so that it would not burn up from the friction of its passage through the air, and a large parachute to slow its descent as it approached the surface. The arc of the descent had been calculated in advance; provided that Thomas could make certain that they began their descent over the correct point on the Earth's surface, with the ship orientated, the *Queen Jane* ought to have been able to drift down into the fields of Kent with no particular difficulty.

It was possible that the crack would make no significant difference, if it remained no wider than a hair. Given that the ether was breathable, at

least in the short term, any exchange of air and ether would be harmless, but the difference in pressure between the interior and exterior of the hull was dangerous in two ways. As the cabin pressure dropped, breathing would become more difficult, as it did during an ascent of a high mountain. More importantly, the pressure exerted on the crack would tend to increase its dimensions, further weakening the hull. When the *Queen Jane* re-entered the atmosphere and began to accelerate in the tightening grip of affinity, it might break up.

Thomas did what he could to seal the hole with the means that Dee had thought to provide, but he could not help looking regretfully at the backs of his hands, at the dressings the Selenite insects had applied to his wounds. With a sealant of that sort, he might have made a much better job of it.

"Would you like to leave me now?" Thomas said, silently, to his unobtrusive passenger. "Or will you wait to see me die, and flee my body in company with my soul?"

"I might have left you, had I been sure that you would be safe," the ethereal replied, "but now I dare not. You might need me, Thomas Digges. I cannot work miracles, but I have means of dealing with your flesh that are cleverer than your own. I might be able to make the difference between life and death."

"Shall I open the hatch again, so that you can invite your brethren to assist my companions in the same fashion?" Thomas asked.

"My kind is not as gregarious as the members of the True Civilization," Lumen said, apologetically. "The ether is unimaginably vast, and our manifold species were not shaped by the crude demands of affinity. No help that I could summon could possibly arrive in time—but I shall do what I can, and it may be that I can enable you to help your companions."

To his crewmen, Thomas said: "The *Queen Jane* might still come safely to ground. If not . . . well, we have individual parachutes, for use in dire emergency. I'll hand them out, so that you can put them on."

"What are our chances, Captain?" de Vere wanted to know.

"I don't know," Thomas confessed. "I have no way to tell. Drake and I will do our very best to guide the ship; the rest of you might do well to pray."

"God would not allow us to see what we have seen, only to die before we bring back the news," de Vere said, in a sudden attack of piety.

"God moves in mysterious ways," Raleigh observed, drily, "his wonders to perform. If Field is right, and there are things that men are not meant to know, so much the worse for those who find them out."

"Be quiet, Raleigh!" Field commanded, as if Thomas's advice to pray had given him an authority he had not had before—and the Puritan did indeed begin to pray, in a voice whose sheer determination suppressed its incipient unsteadiness. He prayed in English, and improvised as he went rather than using any repetitive formula that might be reminiscent of rosary-counting. To Thomas, however, the words seemed like a mere insect hum, devoid of any real significance—as prayer always had to him, although he would never have confessed such a thing, even to his father or John Dee.

While Field prayed, Thomas worked, and was glad to be able to do it, though he felt no terror. It was not that he was not afraid to die, but rather that he was committed to do his utmost to avoid it—not merely for himself but for his loyal crew. He could not help wondering as he worked, though, whether the crack had been formed by some freak of chance—or act of God—or made by the deft stroke of an insectile talon.

Thomas was certain in his own mind that the five of them had not been taken to the heart of the Milky Way in order to be tried, but merely in order to be inspected, investigated at closer range than had previously been convenient. He had no idea how much, or exactly what, the representatives of the True Civilization might have taken from his body and his mind, or how much use it might be to them. He had been, in essence, some specimen casually placed beneath a magnifying lens because the opportunity had presented itself. He did not suppose for a instant that any of his captors—not even the specialist Aristocles, who had died in consequence of his curiosity—had actually cared about him as an individual, or as an intelligence. In such circumstances, the promises of a being like the Great Fleshcore were probably worthless, in principle and in practice.

Such thoughts as these, and not the love or fear of God, were what was in the captain's mind as the ship began its perilous descent into the Earth's affinity-well, when every passing second would henceforth bring it closer to salvation or destruction.

In the meantime, Field's rambling prayer continued, gathering passion as it went—and Thomas could see clearly enough that even Raleigh had committed himself fully to its cause. If de Vere would have preferred a Romanist priest to lead him, there was no sign of it now.

"Thank you, lads," Thomas said, softly. "You've done England proud. Should we be separated somehow, I'll buy you all a drink when we meet up in London."

The *Queen Jane* almost made it—but not quite. She did, however, remain intact long enough to allow Thomas to see the whole of the south-east corner of England looming up beneath him as he finally jumped clear of the disintegrating ship—the last man to do so, as was required of a captain in Her Majesty's service. When he had bid farewell to Drake, the last of his human companions to exit the disintegrating craft, he said to his one remaining friend: "Are you sure that you wouldn't rather go up than down? I shall be safe, I trust, in God's hands."

"We shall both be safe, God willing," Lumen assured him. "In any case, you need not fear for me."

Thomas jumped clear of the wreck of his ship, and opened his parachute.

The slowest part of the descent, psychologically speaking, was the last. It seemed to take forever for the parachute to float over the Garden of England, drifting on the wind almost to the Surrey border. Thomas looked around constantly, hoping to catch sight of one of the other parachutes, but saw none.

His passage seemed so very gentle that he was taken entirely by sur-

prise by the shock of the landing. He rolled with the impact, and contrived to avoid breaking any limbs—whether by virtue of his own skill or with subtle assistance, he could not tell—but he was winded, and badly bruised.

He ended up lying on his back in the grass of a fallow field, staring up into the blue sky, peppered with light cloud. For a long moment, he could not draw breath—but then his lungs recovered, and he gulped convulsively.

There was a quarter-moon clearly visible in the west; the sun was still in the east.

“Thank you,” Thomas said to his passenger, although he was not at all sure that he had anything for which to thank the ethereal.

Lumen seemed even less certain than he was. “I’m sorry, Tom,” it said. “Truly sorry—but it won’t be forever. We shall meet again, you and I, and you shall know then why I must do what I must do. It will not matter how many of the others survive the fall; you were the captain of the ship, and their word cannot stand up against yours.”

“What do you mean?” Thomas demanded.

“I cannot take the risk that the disaster was no accident,” the ethereal said. “Necessity is the mother of improvisation—but it will not be forever, Tom. I promise you that. One way or another, we shall meet again, and you’ll know the truth before you die.”

Thomas opened his lips then, intending to use his real voice as well as his inner one to formulate a protest against whatever his invader intended to do—but he gasped instead, and a spiral of dark blue smoke emerged from his mouth, arranging itself into a perceptible form as it hovered above his face.

Distinct as it was, the form was not readily identifiable. It might have been the shape of some exotic moth, or an artist’s impression of an angel. It was by no means large, but Thomas could not help imagining that it was really a giant seen from a considerable distance rather than a mere trifle lingering inches above his supine body.

The creature could no longer speak to him, or communicate in any other way. Thomas could not tell whether it drifted contentedly away on the breeze, or whether it actively took wing.

But nothing has been done to me! Thomas thought. *I am as I have always been, and I know the truth. If it intended to erase my memory of all that has happened, the trick has failed!*

Thomas sat up and began to rub his aching limbs. He was alone; it seemed that no one had seen him fall. There were undoubtedly men working in the fields close by, but they had not looked up as they worked. Why would they?

Eventually, he got to his feet and began to walk, aiming vaguely in the direction of London. He hoped fervently that his four companions had made it safely to Earth, because he did not want to lose a single one of them—but partly, too, because he knew that there was little hope that anyone would believe his testimony if it were not supported with all possible vehemence by other voices. Dee might believe him, but anyone else—including the queen—would need the sworn agreement of three or four earnest voices before she could take such a fantastic story seriously.

Now that he had seen the ether-creature make its escape, however, Thomas was no longer entirely sure that he believed it himself. Every step he took upon the good and fertile earth decreased his conviction that it had been real.

We humans are, after all, he thought, possessed of the gift—or curse—of dreaming. We are afflicted with the hazard of hallucination, whether we like it or not.

He remembered everything, but the more he interrogated his memory, the more obvious it seemed to become that it must have been a dream—not even a vision, but merely a dream.

Thomas touched his fingertips to the transparent dressings that the moth-creatures had put upon his wounds when he had “rescued” Walter Raleigh from the spider. Had they added more when he had been rescued himself from the hardcore philosopher who had risked so much to tell him that humankind was not alone, and that help would come one day to assist them in resisting the tyranny of the “dwellers in inner space”? He did not know—but felt certain that this supposed physical proof of his adventure was blatantly inadequate. Nor did it seem to him, any longer, at all possible that he had actually said what he had said to the Great Fleshcore, or that he had been party to what the ethereal Lumen had said, by means of his dancing fingertips, to the luckless Aristocles . . . or, indeed, that there had ever been an ether-creature inside him, whether it be angel or insect. John Dee would prefer the former hypothesis, of course—but Dee was a dreamer at heart, and was always wont to place a little too much hope and faith in the produce of his dreaming.

An idea struck him then and he stopped in his tracks, reaching for his pouch. He opened it, and took out two small objects. One of them looked like a severed finger, although it was made of some mysterious spongy substance with a rod of metal in place of a bone. The other was a crudely carved figurine, apparently intended to represent an angel. Thomas laughed, thus confronted with the trivial items that had evidently inspired his nightmare. He could not remember now exactly where he had run across them. He threw them both into the hedgerow, shaking his head in bewilderment at the strange tricks played by the human mind.

Thomas knelt down beside the hedge, to place his left palm flat upon the fallow ground across which he was walking. He had been seen now, by men working in a neighboring field, but they did not come to greet him. He had nothing to do with them; they had their own business, which they were obliged by reason and custom alike to mind.

It's good to be home, he thought, with a sudden rush of glad relief. There's no other place like God's good English earth, and no better time to be here than the reign of good Queen Jane, for anyone who values peace of mind. ○

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THE SEPARATION
 by Christopher Priest
 Old Earth, \$25.00 (hc)
 ISBN: 1-882968-33-6

An alternate history of World War II is the central SF theme in this ambitious novel from Priest. But to describe the story so simply is to give it far less than its due. This isn't just another in the long list of "Nazis win" potboilers; instead, it uses the possibility of a different historical outcome to take a close look at a number of deep questions of history and morality.

The novel is told from a number of points of view, many of them presented in the form of documents and journals by various hands. The initial chapters, set in 1999, are told in conventional third-person narrative from the point of view of a popular historian, Stuart Gratton, who is sitting at an ill-attended book signing, trying to decide what his next book will be. On the first page, the reader learns that Gratton is living in a world in which the US fought a war with China in the 1940s. A woman approaches Gratton, offering him documents concerning her father, J.L. Sawyer, who is apparently mentioned in a letter by Winston Churchill as an RAF pilot who was also a registered conscientious objector.

As the reader might expect, the next section reproduces the narrative of J.L. (Jack) Sawyer. We learn that he and his twin brother Joe (also J.L.) were competitive rowers who won a bronze medal in the 1936 Berlin Olympics, and that Jack later

piloted a bomber that was shot down in 1941, crash-landing in the English Channel. We also learn that, while in Berlin, the two brothers lived with a Jewish family and that they helped the daughter, Brigit, escape from Germany after the Olympics. While Jack was madly in love with her, it was Joe who eventually married her.

Then the inconsistencies begin to add up. Jack is living in a world a lot like ours, one in which Joe died during the London blitz. But we begin to get glimpses of a world in which Jack's plane crash was fatal, and in which Joe lived to see a different outcome to WWII—one in which Rudolf Hess's (historically real) peace mission to England in 1941 actually bore fruit.

Priest plays fascinating games with shifting realities, switching between the twin J.L. Sawyers, and showing us doubles of several historical characters, including Hess and Churchill. The brothers, whose opposing views on the war are effectively contrasted, undergo vivid experiences (possibly hallucinations caused by the separate accidents in which each of them, in one reality, dies). Each of them sees significant events unfold, only to "wake up" and find themselves at the point where their hallucinations began.

The picture of England in the early 1940s is well drawn, and largely accurate historically. Likewise, Priest's portrait of Churchill—a character about whom it is easy to be ambivalent—is a major source of amusement. And the consequences

of a world in which Nazi Germany called off the war in Europe and turned east to pit its entire strength against Stalin's USSR are well developed.

The book's English edition met with widespread neglect, due to vagaries of the publishing business. As a result, this Old Earth edition is the only US edition of the book—possibly the only one likely to be available except to persistent collectors. It's one of the best alternate histories I've read. Don't miss it.

LEARNING THE WORLD

by Ken MacLeod

Tor, \$24.95 (hc)

ISBN: 0-765-31331-7

Old-time fans who grumble about the death of *real* science fiction should run and grab this one, which is packed with enough of the classic tropes to fill a generation starship. In fact, one of those tropes is a generation ship—although a very up-to-date one.

The generation ship comes out of human-occupied space, where a large number of stars have been visited by a series of such ships, each terraforming the likely planets and mining the less likely ones for raw materials before sending on a refurbished ship to the next star in line. Radical advances in longevity mean that most of the original crew and "founders" have survived to see the end of the voyage. Their descendants, the Ship Generation (who have come of age aboard ship), are the prospective settlers of the new system.

None of them know that the system they are headed for is already occupied by an intelligent, civilized species, from whose point of view alternate chapters are told. The batlike Gevorkians (natives of one large nation on the system's terrestrial

planet) are relatively primitive in technology, relying instead on their own ability to fly and on the labor of trudges, slaves of a race superficially similar to themselves, but apparently speechless. Even so, one of them, an astronomer named Darwin, detects the approach of the ship. At first he mistakes it for a comet, but it soon becomes clear to him that the new object is no comet but something completely new.

But both the ship and the world it approaches are undergoing dangerous political changes. Aboard the ship, the tension between the three main factions—the founders, the crew, and the Ship Generation—are coming to a head. The onboard stock market in shares of various plans to exploit the resources of the target worlds undergoes tectonic readjustments as the passengers realize that they are arriving in an inhabited system. While there are protocols for such an event, the event itself is so far unprecedented.

Meanwhile, Gevork and its neighboring countries, long poised on the brink of war, must readjust to the reality of advanced aliens arriving in their system. Almost immediately, the human ship's arrival sparks several technological breakthroughs by doing nothing more than making the locals aware that certain things can be done. (Darwin becomes the Gevorkian equivalent of Arthur C. Clarke by recognizing the principle of satellite communications.)

MacLeod's portrait of the human society is more complex, told from several different viewpoints—notably Atomic Discourse Gale, a young woman whose biolog (open journals) shows the Ship Generation's reaction to the world it is growing up in, and Horrocks Mathe-matical, a young techie who finds

himself mediating among several factions in the ship's huge complement.

The meeting of the two societies—one barely emerging from its equivalent of the Middle Ages, the other able to transform entire planetary systems—is a long-standing SF trope, but MacLeod finds enough new wrinkles to make it fresh. The final twist is particularly refreshing, and is likely to catch many readers by surprise. Suffice it to say that MacLeod again shows that the new hard SF isn't doomed to arrive at the same conclusions as the generations who invented the form—any more than Horrocks Mathematical and Darwin are stuck with the institutions of their ancestors. Recommended.

HIS MAJESTY'S DRAGON

by Naomi Novik

Del Rey, \$7.50 (mm)

ISBN: 0-345-48128-3

One interesting subgenre is what one might call alternate-historical fantasy, in which events of actual history are recast in a world in which one or another element of fantastic fiction holds true. One classic example was John M. Ford's 2002 novel, *The Dragon Waiting*, which was succinctly (if inadequately) described as "the Wars of the Roses with vampires." In this case, the reader will get a quick general notion of the overall tale from the description, "the Napo-leonic Wars with military dragons." As with the Ford title, the bare description hardly touches the surface.

His Majesty's Dragon is Novik's first novel (and begins a trilogy) It opens as the captain of a French frigate, which has waged a desperate battle despite being badly over-matched, capitulates to Will Lau-

rence, the British captain who has defeated him. Laurence is at first puzzled by the Frenchman's stubborn defense, but all becomes clear when the sailors discover a dragon's egg below decks; the egg is a prize for which any man would fight to the death.

Complications ensue when it becomes clear that the egg is on the verge of hatching. Unless a suitable companion to the hatchling is on hand, the dragon will become feral—and thus useless to the British, who lag far beyond the French in dragon breeding. Drawing lots, Laurence chooses one of his officers to "impress" the dragon, then stations the rest of them nearby as the shell breaks. To his utter surprise, the dragon bypasses everyone else and comes directly to him. He is its chosen companion.

Contrary to what the reader may expect, Laurence is far from happy with this turn of events. Naval captains and dragon-fliers are worlds apart in this era of history. Laurence is forced to give up command of his ship and go with his dragon—whom he names "Temeraire," after a famous warship captured from the French—back to England for training as an aviator. Before he leaves, he learns that Temeraire is no usual dragon—he appears to be a Chinese Imperial dragon, meant as a gift for Napoleon himself.

Novik uses the training camp as a springboard for a broad portrait of the England of the Regency era, of its class distinctions and customs, and of what it might have been if dragons had been real. As a bit of an outsider, Laurence serves as a good medium to show the reader the various unexamined assumptions both of the dragon-captains and of the outside world—particularly the aris-

tocratic family whose wishes he defied in joining the Navy.

Better yet, the intersection between our actual history and the world of the novel is rich enough to generate a number of interesting plot twists. To take the best-known historical incident, Nelson and his ships do fight the Battle of Trafalgar in this history, with similar results—but it is revealed to be just one card in Napoleon's hand. Naturally, Laurence and Temeraire turn out to be in exactly the right spot to prevent the gambit from succeeding.

A very good first novel, with effective world building and interesting characters. I'll be eager to see the sequels.

ONE PART ANGEL

by George Shaffner

Algonquin Books, \$23.95 (hc)

ISBN: 1-56512-457-X

It's tempting to describe this one as a fantasy, but to be perfectly frank, there's no *overt* magic taking place in it. What happens could all have a perfectly natural explanation—or maybe not. Even the central character, Vernon Moore, makes no claim to any particular powers—although at the end, the reader may have other ideas about what's happened.

Ebb, Nebraska, is a rural community where most of the major power is held by women. The Quilting Circle is the *de facto* ruling body, with a governing board consisting of most of the influential women in town. Its main adversary is Clem Tucker, the richest man in town, and the owner of the local bank. He also happens to be the fiancé of Wilma Porter, owner of the Come Again Bed and Breakfast, and a founding member of the Quilting Circle.

Then Loretta Parsons, the owner of the local beauty shop, is beaten and her shop torched; she lingers in a coma, with her young daughter in Wilma's care. Worse, the police have arrested Wilma's grandson, Mack Breck, who confesses his role in the attack, but refuses (despite significant pressure) to name his accomplices. At this point, Wilma prays for the return of Mr. Moore, Loretta's former lover, who helped the town through a similar crisis in Shaffner's previous novel, *In the Land of Second Chances*. Almost at once, Moore comes knocking on Wilma's door.

Moore is instantly sympathetic, and agrees to help. After all, not only is he Wilma's friend, he is the father of Loretta's child. But his approach to getting Matt to talk is distinctly un-

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orthodox: one part Socratic method, one part torture by wish-fulfillment, one part banjo-playing . . . and a fair bit of story-telling.

In between Moore's sessions with Matt, the Quilting Circle learns that Clem, who has a finger in every financial pie in Ebb, is planning a new coup—one the members fear will put their town at the mercy of outsiders who would think nothing of closing their local bank and replacing it with a soulless ATM. Vince steps in with words of wisdom to both Clem and to the quilters. And at a critical point, he appears to perform a miracle, although he later denies it.

The story, told from Wilma's point of view, is dryly humorous and full of good lines. Shaffner keeps the question of exactly what powers Moore possesses close to the vest; there are two apparently supernatural events in the plot, which Moore tries hard to explain away. The first time, one might buy the notion that it's a coincidence. The second is a bit more spectacular, and a lot harder to dismiss, although readers who don't want any hint of the miraculous in their fiction can probably manage it.

Winningly told, full of convincing small-town life. One to look for if your interests extend beyond hard-core genre fic.

THE PLANETS

by Dava Sobel

Viking, \$24.95 (hc)

ISBN: 0-070-03446-0

Sobel, whose *Longitude* was one of the best pop science books in recent memory, takes on another astronomical subject in *The Planets*. This time, her approach isn't so much historical as thematic—while each chapter focuses on a different mem-

ber of the Sun's family, each takes a different approach, representing one of the many ways the planets has resonated in history, culture, and—yes—science.

Sobel begins with a brief reminiscence of her own introduction to science and astronomy, in school science fairs (where she made her own model of the solar system). Then, beginning with the Sun itself, she works her way outward through the planets. Mercury, too close to the Sun to retain any atmosphere, served as one of the first clear test cases for Einstein's gravitational theory. Venus, on the other hand, suffers from an excess of acid atmosphere—with a greenhouse effect that heats its surface to above the melting point of lead. Our own world offers the occasion for a brief history of geography, from the days of the wide-ranging Greeks to the pinpoint precision of GPS technology.

The Moon, in its turn, launches a discussion of how we measure time, especially the problems of reconciling the incompatible rhythms of three different phenomena: the rotation of the Earth, its revolution about the Sun, and the revolution of the Moon about the Earth. Each of these has been the basis for some historical calendar, yet because no two of them can be put in simple arithmetic ratio to each other, our calendars are full of leap-days and months of uneven duration.

Sobel continues outward through the roster of planets, taking each as the springboard for an essay on some related subject. We see Mars from the point of view of a meteorite found in Antarctica—once a fragment of the Red Planet. The chapter on Jupiter is titled "Astrology," with Sobel walking a path between ancient superstition and the current

scientific picture of the giant world. Uranus and Neptune are discussed in the persona of Caroline Herschel, who got little if any credit for discoveries supposedly made by her brother William—including the planet Uranus—although it's become increasingly clear that she was as good an astronomer as he was. Pluto's status as the outermost planet becomes shakier year by year, with the discovery of various objects in more distant orbits and the growing suspicion among astronomers that Pluto itself may be just a big comet that fell into a quasi-planetary orbit.

Sobel is a consistently entertaining writer, and her asides are often as much fun as the main topic. Probably her most personal book, this one ought to appeal to readers well beyond the ranks of astronomy buffs.

THE COSMIC LANDSCAPE
String Theory and the Illusion
of Intelligent Design
 by Leonard Susskind
 Little, Brown, \$24.95 (hc)
 ISBN: 0-316-15579-9

First of all, the phrase "Intelligent Design" in the title is a bit of a misnomer. Susskind's real topic, in his first book for a popular audience, is the multiverse—the entire range of possible universes posited by the "many worlds" variant of quantum theory.

Susskind notes that several critical parameters of physics seem to be so finely tuned that even a minor change in them would turn the universe into one utterly hostile to living things. The value of the cosmological principle deviates from zero only in the 120th decimal place. A change in this constant would lead to a universe that expanded too rapidly, or contracted too quickly after the

Big Bang, would have allowed too little time for any kind of life to develop. Changes in the masses and charges of elementary particles, could have made even chemistry (at least, in the form in which we know it) impossible.

This apparent fine-tuning has led some cosmologists to propose the "Anthropic Principle," claiming that the universe is as it is because otherwise intelligent life could not exist. To other scientists, anthropism is at worst religion in disguise, at best a tautology. Susskind sees anthropism as an inevitable feature of his cosmic "landscape," where different sets of physical laws apply in isolated regions. Our universe is only one of many regions of the landscape, or multiverse, as SF writers like to call it.

Susskind even offers a sort of humorous SF story of his own, of a world of intelligent fish trying to explain their underwater world in terms of an "ickthropic principle." But his main game here is an overview of the evolution of modern physics, especially the branches that lead to string theory and its various offshoots. He's been one of the key players in physics for long enough that he has a good stock of entertaining stories about the other giants of the discipline, among them Richard Feynman and Murray Gell-Mann. But he also manages to give as clear a picture of string theory as you're likely to get without a hefty dose of math.

The anthropic principle seems unconvincing to me; perhaps I've been misled by the materialistic science of an earlier paradigm. Still, this is a good book to read if you want to see the hard-science underpinnings of some of today's more adventurous SF writers. ○

SF CONVENTIONAL CALENDAR

It's time to make final plans to get to the Los Angeles World SF Convention. Plan now for social weekends with your favorite SF authors, editors, artists, and fellow fans. For an explanation of con(vention)s, a sample of SF folksongs, info on fanzines and clubs, and how to get a later, longer list of cons, send me an SASE (self-addressed, stamped #10 [business] envelope) at 10 Hill #22-L, Newark NJ 07102. The hot line is (973) 242-5999. If a machine answers (with a list of the week's cons), leave a message and I'll call back on my nickel. When writing cons, send an SASE. For free listings, tell me of your con 6 months out. Look for me at cons behind the Filthy Pierre badge, playing a musical keyboard.—Erwin S. Strauss

JUNE 2006

29–July 2—Origins. For info, write: 80 Garden Center #16, Broomfield CO 80020. Or phone: (303) 469-3277 (10 AM to 10 PM, not collect). (Web) originsgames.com. (E-mail) custserv@gama.org. Con will be held in: Columbus OH (if city omitted, same as in address) at the Hyatt and Convention Center. Guests will include: none announced. Big gaming con.

30–July 2—PortCon. portconmaine.com. Sheraton South, Portland ME. Prototype Comics, Doughty, Sorensen. Anime.

JULY 2006

1–4—WesterCon. conzilla.info. Mission Valley Marriott, San Diego CA. W. Williams, Eggleton, Armbruster, K. Anderson.

7–9—InConJunction. inconjunction.org. Sheraton, Indianapolis IN. Skov-Jansen, Mike Moore, Anelli, Spartz, Pyaatt.

7–9—ReaderCon. readercon.org. Marriott, Burlington MA. China MiQville, James Morrow. About written SF exclusively.

7–9—ConVergence. convergence-con.org. Sheraton Bloomington, Minneapolis MN. Gaming emphasis.

7–9—TTCon. (416) 410-8266. tt-info@toon.ca. DoubleTree Int'l Plaza, Toronto ON. Wang, R. Hatch. Media SF.

8–9—Japan Nat'l. Con. zuncon.jp. info@zuncon.jp. Matsushima, Miyagi prefecture (Touhoku region), Japan.

14–16—DarkSideCon, c/o Krüger, Laurentiusstr. 4, Bochum 44805, Germany. darksidecon.de. Park Hotel, Witten.

14–16—ConMisterio, Box 27277, Austin TX 78755. conmisterio.org. karen@conmisterio.org. Mystery fiction.

20–23—ComicCon Internat'l, Box 128458, San Diego CA 92112. (619) 491-2475. comic-con.org. Convention Center.

21–23—TrinocCon/DeepSouthCon, Box 10633, Raleigh NC 27605. trinoc-con.org. Hilton North. Drake, Kessel.

21–24—Comstock. davetotoro.mahoutsukai.net/comstock.html. Freyburg Fairgrounds, Freyburg ME. Anime.

26–29—Romance Writers of America, 3737 Fm 1960 W. #555, Houston TX 77068. (281) 440-6885. Atlanta GA.

28–30—ConFluence, Box 3681, Pittsburgh PA 15230. (412) 344-0456. parsec-sff.org. Geoffrey A. Landis.

28–30—DemiCon, Box 7572, Des Moines IA 50232. demicon.org. Hotel Ft. Des Moines. Chui, Pooveys, Rod Serling Jr.

28–30—ConEstoga, 440 S. Gary Ave. #45, Tulsa OK 74104. (918) 445-2094. sftulsa.org. Sheraton. Drake, Maltz.

28–30—Dark Shadows Festival, Box 92, Maplewood NJ 07040. darkshadowsfestival.com. Renaissance, Hollywood CA.

30—Zombies, c/o 354 Greenlow Rd., Catonsville MD 21228. icstfilm.net. Perry Hall Church Hall. Horror film festival.

31–Aug. 6—Timeless Destinations. timelessdestinations.com. Best Western, Richmond BC. B. Downey, W. Pygram.

AUGUST 2006

3–6—PulpCon. pulpcon.org. Convention Center. For collectors of old pulp magazines.

4–6—Fandemonium. fandemonium.org. borneo@fandemonium.org. Civic Theater, Nampa ID. SF, anime, and fantasy.

4–6—Anime Overdose, 1101 Van Ness Ave., San Francisco CA 94109. aodsf.com. Cathedral Hill Hotel.

4–6—MeCon, 99 Malone Rd., Belfast BT9 6SF, UK. meconbelfast@yahoo.co.uk. Ian MacDonald, Duane & Morwood.

23–27—LACon IV, Box 8442, Van Nuys CA 91409. info@laconiv.com. Anaheim CA. Connie Willis. The WorldCon. \$175.

AUGUST 2007

2–5—Archon, Box 8387, St. Louis MO 63132. archonstl.org. Collinsville IL. 2007 No. American SF Convention. \$60+.

30–Sep. 3—Nippon 2007, Box 314, Annapolis Jct. MD 20701. nippon2007.org. Yokohama Japan. WorldCon. \$180.

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SEPTEMBER ISSUE

Gonzo writer, scientist, and mathematician **Rudy Rucker** returns to show us the dangers of even the best of intentions, as the release of billions of polite and very helpful nano-creatures soon transforms our familiar Earth into a "Postsingular" world in which nothing whatsoever is ever going to be the same again, for better *and* worse. This is a funny and free-wheeling adventure full of bizarre transformations and daring new ideas, as is to be expected from Rucker, so don't miss it!

ALSO IN SEPTEMBER

Nebula-winner **John Kessel**, one of the most renowned writers of his generation, returns with a sequel to his famous novella "Stories For Men," as an exile from a strange Utopia learns a bitter lesson about what it takes to get along in a hard-edged, no mercy, cash-on-the-barrelhead Lunar colony, in "Sunlight or Rock"; popular new writer **Jack Skillingstead** instigates a very peculiar kind of romance with the "Girl in the Empty Apartment"; new writer **Karen Jordan Allen**, making her *Asimov's* debut, warns us of the dangers of getting *too* close to another culture, in "God-burned"; **Carl Frederick** takes us deep underground to the total darkness and isolation of a cave for an unusual experiment in physics that demonstrates that "We Are the Cat"; new writer **David D. Levine** goes exploring in the dense, dank forests of the Pacific Northwest, where one man's fate becomes tangled up with several different kinds of "Primates"; and new writer **Ian Creasey** takes us back in time to show us the fate of several star-crossed (literally!) strangers who encounter a potentially deadly "Silence in Florence."

EXCITING FEATURES

Robert Silverberg's "Reflections" column goes fishing for "The Kraken"; **Paul Di Filippo** brings us "On Books"; and, in our Thought Experiment feature, Nebula- and Hugo-winner **Kristine Kathryn Rusch** testifies for the defense in the Trial of *Star Wars* by making some heartfelt "Barbarian Confessions"; plus an array of poems, puzzles, and other features. Look for our September issue on sale at your newsstand on August 1, 2006. Or subscribe today and be sure to miss none of the fantastic stuff we have coming up for you this year (you can also subscribe to *Asimov's* online, in varying formats, including in downloadable form for your PDA, by going to our website, www.asimovs.com).

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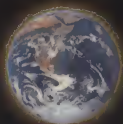
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